Appendix D Planning Documents

ACCIDENT PREVENTION PLAN

FOR

Cornell-Dubilier Electronics Superfund Site Operable Unit 01 – Property Remediation South Plainfield, New Jersey

> South Plainfield, New Jersey CONTRACT No. W912DQ-10-D-3006 TASK ORDER: 0002

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Revision No. 2

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Sevenson Environmental Services, Inc.



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Acronyms

ACGIH American Conference of Governmental Industrial Hygienists'

AHA **Activity Hazard Analysis**

AIHA American Industrial Hygiene Association American National Standards Institute ANSI

APP Accident Prevention Plan CBC Complete Blood Count Cubic centimeter

CDC Center for Dieses Control Code of Federal Regulation CFR

Certified Health and Safety Technician **CHST**

CIH Certified Industrial Hygienist

CO Carbon Monoxide

COR Contracting Officers Representative CPR Cardiopulmonary resuscitation

CQCSM Contractor Quality Control Site Manager

CSP Certified Safety Professional

Cubic yard CYdB(a) Decibels A scale

DOT Department of Transportation Manual on Uniform Traffic Control

Devices MUTCD

cc

EM **Engineering Manual**

Emergency Medical Service EMS

Forced Expiratory Volume in 1 second FEV1

FVC Forced Vital Capacity

GFCI Ground Fault Circuit Interrupter

HAZWOPER Hazardous Waste Operations and Emergency Response

HEPA High Efficiency Particulate Air

HTRW Hazardous, Toxic and Radioactive Wastes **IDLH** Immediately Dangerous to Life and Health

KPA Kinetic Phosphorescence Analyzer

Lower Explosive Limit LEL mg/m^3 milligram per cubic meter mR/hr Milliroentgen per hour **MSDS** Material Safety Data Sheets

National Institute for Occupational Safety and Health **NIOSH NJDEP** New Jersey Department of Environmental Protection **OSHA** Occupational Safety and Health Administration

Oxygen gas O_2

PCB Polychlorinated Biphenyls Permissible Exposure Limit PEL Photo Ionization Detector PID **PPE** Personal Protective Equipment

parts per million ppm

ROPS Roll Over Protective Structure

SCBA Self-Contained Breathing Apparatus

SHM Safety and Health Manager

SMAC 24 Blood tests that gives your doctor important information about the

current status of your kidneys, liver, and electrolyte and acid/base

balance as well as of your blood sugar and blood proteins.

SSHO Site Safety and Health Officer TWA Time Weighted Average microgram per cubic meter

USACE United States Army Corps of Engineers

USCG United States Coast Guard

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compounds



1. Signature Sheet

Cornell-Dubilier Electronics Superfund Site Operable Unit 01 – Property Remediation South Plainfield, New Jersey

CONTRACT No. W912DQ-10-D-3006 TASK ORDER: 0002

Accident Prevention Plan Approvals
Revision 2

Revision 2	
a. Plan Preparer	
Haul 56	8/13/2012
Paul Jung, CSP, Corporate Safety Staff Sevenson Environmental Services, Inc. 716-284-0431 x 207	Date
b. Plan Approval	8/13/12
Alfred LaGreca, V.P. of Operations	Date
Corporate Project Manager Sevenson Environmental Services, Inc. 716-284-0431 x 250	
c. Plan Concurrence	
Paul Hitcher	8-13-12
Paul Hitcho Ph.D., CIH, V.P. Director of Health and Safety	Date
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d. Plan Agreement	1 /
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908-769-5301	
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Kim Lickfield	Date
Project Manager	
Sevenson Environmental Services, Inc.	
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Eric Tschudi, CHST	Date
Site Safety and Health Officer	

772-475-6821

2. Background Information

a. Contractor

Sevenson Environmental Services, Inc.

b. Contract Number

W912DQ-10-D-3006 Task Order: CF02

c. Project Name

Cornell-Dubilier Electronics Superfund Site OU-1 Property Remediation

d. Brief Project Description

Sevenson Environmental Services, Inc., (Sevenson) is under contract with the US Army Corps of Engineers (USACE) to remediate residential properties associated with the Cornell-Dubilier Electronics Superfund Site.

The remedial action effort will focus on the remediation of the Cornell-Dubilier Electronics Superfund Site, Operable Unit 01 (OU-1), in the Borough of South Plainfield, Middlesex County, New Jersey. OU-1 consists of three residential property clusters (eight properties), that are contaminated with PCB laden soils. Work includes excavation of approximately 2,500 cubic yards (CY) of contaminated soils; transportation of contaminated soil to an offsite facility for disposal; restoration; sampling and analysis of soil for waste characterization, and air; and other activities necessary for complete and proper remediation of the site.

Definable features of work for this project include but are not limited to the following:

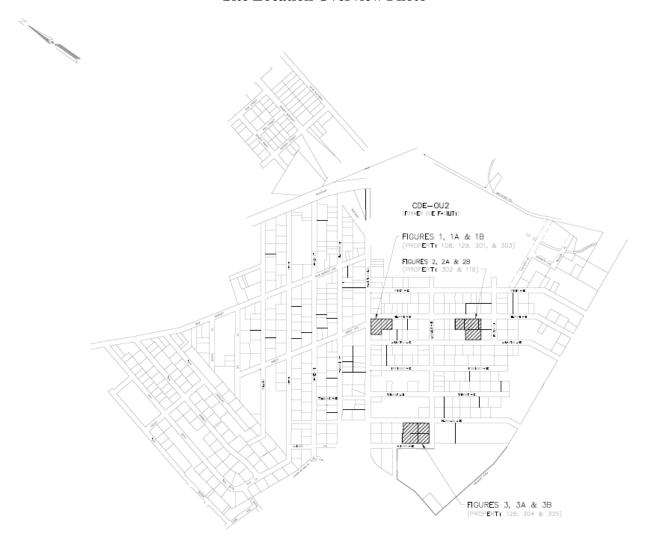
- Installation of soil erosion and sediment control measures:
- Installation of temporary excavation perimeter controls (fencing);
- Storm Water Pollution Prevention Measures:
- Temporary Construction Facilities;
- Surveying;
- Clearing and Grubbing;
- Excavation;
- Backfill and Compaction;
- Waste Transportation and Disposal;
- Tree removal;
- Seeding;
- Sodding; and
- Exterior Plantings.

Activity Hazard Analysis (AHA) have been prepared for the following definable features of work and are included in Appendix E.

- Site mobilization
- Site Surveying

- Silt fence installation
- Safety fence installation
- Backfilling and grading
- Clearing and grubbing
- Excavation
- Hydro seeding
- Sampling activities
- Site material handling
- Site restoration
- Storm water pollution prevention
- Transport hoisting with hydraulic equipment
- Transportation and disposal of contaminated material
- Tree clearing

Figure 1 – Site Location Overview Photo



3. Statement of Safety and Health Policy

Sevenson maintains comprehensive programs to minimize and manage health or safety risks. The quality of work life has a high priority in our organization, which means that all employees must regard health and safety protection responsibilities seriously. Our goal is to reduce risk of bodily harm and business interruption due to at risk behaviors, insufficient supervision, improper hazard assessments, and training deficiencies.

To fulfill this goal, management is committed to:

- a. Maintaining programs that identify and assess occupational health and safety risks.
- b. Providing the funds to implement health and safety programs that control and minimize risks to employees.
- c. Controlling and reducing employee exposure to all hazardous agents in accordance with government regulations.
- d. Informing employees of health and safety risks and ensuring that all members of the organization understand the company's health and safety measures.
- e. Communicating with customers, governmental agencies, and the public on matters that affect employee and public health and safety.
- f. Planning, designing, and constructing a safe and healthful work environment at all job sites.
- g. Developing processes and establishing operating methods that minimize health and safety risks.
- h. Encouraging all employees to work in a safe and healthful manner and providing training directed toward this objective, when needed.

4. Responsibilities and Lines of Authorities

a. Statement of Ultimate Responsibility for the Safety Program.

Sevenson is ultimately responsible for the implementation of the safety program at the Site, the responsibility for Safety and Health extends throughout our organization from top management to every employee. For this reason, it is each person's duty to notify the management personnel if a hazardous condition is identified and to make a "stop work" call when the condition represents an immediate danger to life or health, until the SSHO and Project Superintendent can make a further determination.

- b. Identification and Accountability of Personnel Responsible for Safety
- (1) Paul Hitcho, CIH Director of Health and Safety
- (2) Paul Jung, CSP Corporate Safety Support Team (Alternate Site Safety Officer)
- (3) Eric Tschudi, CHST Site Safety and Health Officer
- c. Competent or Qualified Person(s)

The SSHO, and the Superintendent have been designated as competent or qualified persons for this project.

The SSHO shall be the competent person for the following:

> Fall Protection Program

- Respiratory Protection Program
- ➤ Hazardous Communication Program
- Confined Space Program
- ➤ Air sampling and monitoring

The Superintendent shall be the competent or qualified person for the following:

- > Excavations
- General Operations
- d. Authority to perform work

No work shall be performed unless the competent/qualified person is present at the site. Qualifications of competent persons is located in Appendix A.

e. Pre-task safety and health analysis

Prior to the start an activity a Safe Plan of Action (SPA) shall be prepared and signed by the affected workers. The SPA includes a list of steps to be taken during a task, a list of hazards that could or will be encountered, and the controls that shall be implemented to control or abate the hazard. Supervision, impacted workers, safety will be responsible for completing the SPA. The SPA is designed to be updated throughout the day as conditions change or new hazards are identified. A blank SPA can be found in Appendix D Health and Safety Forms.

f. Lines of authority

The following are the Sevenson project personnel positions and responsibilities for this project. Refer to *Figure 2 – "Organizational Chart"*.

Corporate Project Manager: Alfred LaGreca
 Project Manager: Kim Lickfield
 Project Superintendent: Perry Novak

• Safety and Health Manager: Paul Hitcho, Ph.D., CIH

Occupational Physician: Dr. Peter Greaney
 Site Safety and Health Officer: Eric Tschudi, CHST

(4) Corporate Project Manager

The Corporate Project Manager for this project is Mr. Alfred LaGreca. He directs and manages all aspects of the project in compliance with all contract and technical requirements. The Corporate Project Manager will monitor and control all subcontractors to achieve optimal performance and demonstrate safe, high quality performance that complies with all contract requirements.

(5) Project Manager

The Project Manager for this project is Mr. Kim Lickfield and reports to the Corporate Project Manager. His responsibilities include coordinating project activities with the Superintendent and serving as the primary liaison with the COR. The Project Manager prepares all correspondence, submittals, and other documentation required for the project; coordinates schedules; and

administers the contract. The Project Manager prepares reports and documentation, supervises inspection personnel, and reviews and approves procurement and subcontract activities.

(6) Project Superintendent

The Superintendent for this project is Mr. Perry Novak and supervises and coordinates all construction crew activities relating to site preparation, excavation, shipping, and restoration. The Superintendent has the operational responsibility for the implementation of the APP for this project. This includes establishing an attitude of concern for safety matters by initiating prompt corrective action of hazards brought to his attention, and ensuring that the project safety and health requirements are initiated and observed by all project personnel.

The Superintendent plans and requires that all work be performed in compliance with this Plan, the Sevenson Corporate Health and Safety Plan and the USACE safety manual including all applicable local, state, and federal regulations. Mr. Novak will impress upon all subcontractors' supervisory personnel a sense of responsibility and accountability of each individual to maintain a safe workplace and to work in a safe manner.

(7) Safety and Health Manager (SHM)

The Safety and Health Manager for this project is Paul Hitcho, Ph.D., CIH and is responsible to the Corporate Project Manager. The Safety and Health Manager formulates, administers and coordinates programs for the company to reduce the risk of loss due to employee injury, regulatory non-compliance, general liability, fire, theft, or damage. The Safety and Health Manager will develop written detailed policies and procedures covering elements in the Safety, Health and Environmental Program. The Safety and Health Manager's work history/resume and Certified Industrial Hygienist certificate are located in Appendix A. The Safety and Health Manager will:

- Be responsible for the development, implementation, oversight, and enforcement of the APP;
- Sign and date the APP prior to submittal;
- Conduct initial site-specific training;
- Be present onsite during the first day of remedial activities and at the startup of each new major phase;
- Visit the site as needed and at least once per field event to audit the effectiveness of the APP and be available for emergencies;
- Provide onsite consultation as needed to demonstrate that the APP is fully implemented;
- Coordinate any modifications to the APP with the Superintendent, the SSHO, and the COR;
- Provide continued support for upgrading/downgrading the level of personal protection;
- Be responsible for evaluating air monitoring/sampling data and recommending changes to engineering controls, work practices, and Personal Protective Equipment (PPE);
- Review accident reports and results of daily inspections; and
- Serve as a member of the Sevenson's quality control staff.
- (8) Occupational Physician

The Occupational Physician for this project is Dr. Peter Greaney and is under the direction of the Safety and Health Manager. The Occupational Physician will be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1926.65. The Occupational Physician will provide the Safety and Health Manager with a written opinion of each employee's ability to perform hazardous remedial work.

(9) Site Safety and Health Officer (SSHO)

The SSHO for this project is Mr. Eric Tschudi, CHST. His work history/resume, certifications, and 30 hour OSHA Outreach Course certificate are located in Appendix A. Under the direction of the Safety and Health Manager, the SSHO will be responsible for the implementation of the APP and for the daily coordination of safety activities with the Superintendent and the COR to verify that the planned work objectives reflect adequate safety and health considerations. The SSHO will submit to the COR Certificates of Worker/Visitor Acknowledgements for site personnel prior to initial entry onto the Site. He will maintain a complete copy of this plan (and its supplements and addenda) at the Site during all field activities and verify that all workers and visitors are familiar with it. He will perform site-specific training and briefing sessions for employee(s) prior to the start of field activities at the site and a briefing session each day before starting work. He will confirm the availability, proper use and maintenance of specified personal protective equipment, decontamination equipment, and other safety and health equipment. He will maintain a high level of safety awareness among team members and communicate pertinent matters to them promptly. The SSHO will:

- Assist and represent the Safety and Health Manager in on-site training and the day-to-day on-site implementation and enforcement of the accepted APP;
- Be assigned to the Site on a full time basis for the duration of field activities excluding site grading, filling, paving, site restoration, and demobilization (The SSHO may be at the site on a part-time basis during these activities). The SSHO can have collateral duties in addition to Safety and Health related duties, however, health and safety duties shall come first;
- Have the authority to demonstrate site compliance with specified safety and health requirements, Federal, state and OSHA regulations; and all aspects of the APP. This includes, but is not limited to, activity hazard analyses, air monitoring/sampling, use of PPE, decontamination, site control, standard operating procedures used to minimize hazards, safe use of engineering controls; the emergency response plan, confined space entry procedures, spill containment program, and preparation of records. This will be accomplished by performing a daily safety and health inspection and documenting results on the Daily Safety Log;
- Have authority to stop work activities if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions;
- Consult and coordinate any modifications to the APP with the Safety and Health Manager, the Superintendent, and the COR;
- Serve as a member of the Sevenson's quality control staff on matters relating to safety and health. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings;
- Conduct accident investigations and prepare accident reports;

- Conduct daily safety inspection and document safety and health findings into the Daily Safety Inspection Log. Track noted safety and health deficiencies to document that they are corrected; and
- Coordinate with Site Management and the Safety and Health Manager, recommend corrective actions for identified deficiencies, and oversee the corrective actions

g. Disciplinary Action Policy

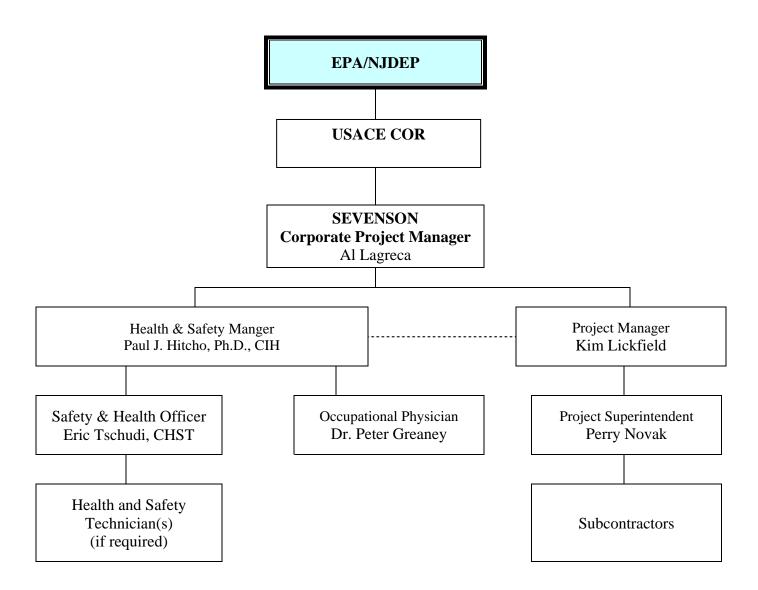
It is understood that at times it is difficult for an employee to completely understand and comply with all safety rules and regulations. Therefore, a policy of training, retraining, verbal and written and finally disciplinary action including suspension and termination from the company has been placed into effect.

All operating employees receive safety and health training. It is the responsibility of both the Supervisor and the SSHO to reinforce this training by example and by correcting the employee when he\she is in violation of a particular rule. Usually this informal reinforcement enables the employee to understand the rule and thus gain his\her cooperation and compliance. However, there are instances when a more formal procedure becomes warranted. In these cases a formal verbal warning will be issued. The next step is a written warning that is placed in the employee's personnel file. If the inappropriate behavior persists, then either a suspension without pay or termination from the company will occur. In the case of a major violation of safety procedures an employee will be removed from the job.

h. Accountability

Sevenson evaluates its management personnel on a number of metrics including near misses, audit results, first aid cases, OSHA recordable injuries and illnesses, and implementation of the Accident Prevention Plan. In line with Sevenson's corporate culture "safety being the right thing to do" we also evaluate behavioral aspects i.e., setting an example in regard to safety and health, encouraging worker input on safety concerns, acting on these concerns, and communicating with the workforce. Job site safety and health is an important facet of our overall labor relations program, and the effectiveness of our management in implementing the safety and health program is reflected in measureable criteria i.e., number of grievances, number of union workers who want to work on future Sevenson projects, and co-operation with Union safety and health personnel in resolving issues.

Figure 2 – Organizational Chart



5. Subcontractors and Suppliers

Subcontractors are covered by this APP and will be provided a copy prior to commencing work. The Sevenson SSHO will verify that subcontractor employee training; medical clearance, and respirator fit test records are current and will monitor and enforce compliance with the established plan and standard operating procedures, as applicable. As with all site personnel, subcontractors will be briefed on the provisions of this plan and attend all daily toolbox safety meetings.

Sevenson will continually monitor a subcontractor's safety performance. Sevenson will observe subcontractors for hazards or unsafe practices that are both readily observable and occur in common work areas. The SSHO will note subcontractor work practices on the daily Quality Control Report. If non-compliance or unsafe conditions or practices are observed, the subcontractor safety representative will be notified and corrective action will be required. The subcontractor will determine and implement necessary controls and corrective actions. If repeat non-compliance/unsafe conditions are observed, the subcontractor will be required to stop affected work until adequate corrective measures are implemented.

a. Subcontractors and Suppliers

Subcontractors to be procured for this project include the following:

- Layout, Inc. Surveying;
- Central Jersey Nurseries, Inc. Sod installation;
- Johnny on the Spot Chemical toilets;
- Saboney Enterprise, Inc. Waste Transportation and Disposal;
- Modular Space Corporation Office trailers;
- EME, Inc. Backfill supplier;
- Mitkem Laboratories Chemical Analysis;
- NOVA QA Consulting Services, LLC Soils testing;
- Fencing TBD;

b. Safety responsibility for subcontractors and suppliers

Sevenson will continually monitor a subcontractor's safety performance. Sevenson will observe subcontractors for hazards or unsafe practices that are both readily observable and occur in common work areas. The SSHO will note subcontractor work practices on the daily Quality Control Report. If non-compliance or unsafe conditions or practices are observed, the subcontractor safety representative will be notified and corrective action will be required. The subcontractor will determine and implement necessary controls and corrective actions. If repeat non-compliance/unsafe conditions are observed, the subcontractor will be required to stop affected work until adequate corrective measures are implemented

6. Training

a. Requirements for New Hire

Prior to commencement of remediation activities, all site employees will attend a site-specific safety and health training session. This session will be conducted by the HSM or SSHO, to

verify that personnel are familiar with the requirements of this APP. The initial session will consist of the contents of this APP and specific procedures developed for the project. The SSHO will also provide initial site-specific training for replacement employees.

As a minimum the site-specific training will include:

- > Explanation of the APP;
- ➤ Health and Safety Personnel and Organization;
- Special attention to signs and symptoms of overexposure to known and suspected site contaminants;
- ➤ Health effects of site contaminants;
- ➤ Air monitoring description;
- > Physical hazards associated with the project;
- > Selection, use, and limitations of available safety equipment and proper procedures for its use;
- > Personal hygiene and decontamination;
- Respirator fit testing;
- > PPE fitting to determine proper size for individuals;
- > Site rules and regulations;
- ➤ Work zone establishment and markings;
- > Site communication and the "Buddy System";
- Emergency preparedness procedures;
- > Equipment decontamination;
- Medical monitoring procedures;
- > Review applicable Sevenson Standard Operating Procedures; and
- > Site Specific Hazard Communication.
- b. Mandatory Training and Certifications Applicable to this Project

Site personnel will be required to have various training courses to perform their work in a safe and efficient manner. The following list outlines the mandatory training requirements.

- ➤ 40 hour HAZWOPER training and three days of actual field experience under the direct supervision of a trained experienced supervisor.
 - All Site personnel assigned to the project that will perform work in either the Contamination Reduction Zone, Exclusion Zone, or handle hazardous materials that have been prepared for shipment stored in the Support Zone shall have completed a 40 hour HAZWOPER training course
- ➤ 24 hour HAZWOPER training and one day of actual field experience under the direct supervision of a trained experienced supervisor

 Workers on site only occasionally for specific limited tasks and who are unlikely to be exposed over permissible exposure limits shall have completed at least 24 hours in HAZWOPER instruction.

➤ 8 hour HAZWOPER annual refresher training

• All Site personnel that have completed a HAZWOPER training course shall receive at a minimum 8 hours of refresher training annually.

➤ 8 hour HAZWOPER Supervisor training

Site management and supervisors directly responsible for, or who supervise
employees engaged in hazardous waste operations shall receive a minimum of 8
additional hours of training on the safety and health program and associated
employee training program, personal protective equipment (PPE) program, spill
containment program, and health hazard monitoring procedures and techniques.

➤ 30 hour OSHA Construction Outreach Training

• The SSHO shall have completed a 30 hour OSHA Construction Outreach Training course.

> Transportation of Hazardous Materials training as describe in 49 CFR 172 Subpart H

• This training will be task specific for any employee who handles, prepares, offers, or accepts materials classified as hazardous by the USDOT. This training is required initially and every 3 years after that, unless there are changes in rules, regulations, manifests, or procedures.

Confined Space Entry Training

- Any person who enters into a Permit Required Confided Space must receive entrant training prior to entering the confined space.
- Any person who is designated at a Permit Required Confined Space Attendant must receive Attendant training prior to being assigned as an attendant.
- Any supervisor requesting personnel to enter into a Permit Required Confined Space shall receive supervisor training prior to authorizing Permit Required Confined Space work.

➤ Lockout Tagout Training

 All employees will receive initial and annual training for Site procedures for the control of hazardous energy controls. This training will be conducted at least annually.

Excavation and Trenching Competent Person Training

• Supervisors that are responsible for directing personnel performing excavation or trenching operations will have sufficient knowledge and training to identify safe and unsafe conditions. The Competent Person will also have the authority to call upon various resources to correct any unsafe condition.

First Aid and Cardiopulmonary Resuscitation (CPR) Training

• At least two site personnel will be required to complete first aid and CPR training and receive the appropriate certification. All first aid/CPR training is American

Red Cross, American Heart Association approved or in accordance with OSHA standards. Additionally, First Aid/CPR qualified personnel will have received blood borne pathogen training as required by 29 CFR 1910.1030.

c. Periodic Training

Periodic training sessions will be provided at least quarterly and prior to each change of operation. The training will address safety and health procedures, work practices, any changes to this Plan, review of AHAs, work task or schedule, results of previous week's air monitoring, review of safety discrepancies and accidents, and discussion of worker concerns.

d. Emergency Response Training

All employees will be trained in the use of fire extinguishers, spill response, emergency signals, and evacuation procedures annually or as new types of fire extinguishers are installed or evacuation procedures are modified.

7. Safety and Health Inspections

Safety and Health inspections will be conducted to discover, through specific, methodical auditing, checking, or inspection procedures, conditions and work practice that lead to job accidents and illnesses.

a. Assignment of Responsibility

The HSM shall be responsible for ensuring that inspections are conducted at the frequency stated, reviewing the Daily Safety Logs for completeness, thoroughness, and trends; performing project inspections as necessary; and training site personnel on proper inspection techniques.

The SSHO shall be responsible for ensuring that daily inspections are conducted, reviewing the inspections findings and corrective actions for applicability and thoroughness, and providing the site management personnel with a summary of inspection findings each month.

Daily inspections shall include the date, work area inspected, employees present in work area, PPE and equipment being utilized, special safety and health issues or notes, and signature of the inspector(s).

b. External Inspections

There is a possibility of Site inspection from outside agencies during this contract. These agencies may include but are not limited to:

- New Jersey Department of Environmental Protection
- United States Department of Transportation
- Federal Railroad Administration
- United States Environmental Protection Agency
- Occupational Safety and Health Administration

The COR shall be immediately notified of any regulatory agency inspection. The inspection should not be delayed due to non-availability of the COR or their designee. The SSHO will provide the COR copies of any citations received or reports issued by the inspector and any correction action responses.

The SSHO will maintain a safety and occupational health deficiency tracking system that lists and monitors the status of safety and health deficiencies in chronological order. This list will be posted on the project safety bulletin board and will be updated as new items are added. The tracking system list will identify the date and description of the deficiency, the name of the person responsible for correction, the projected resolution date, and the date actually resolved.

The SSHO will develop a safety report based on the deficient inspection items noted during the inspection and conveying the deficiencies to the Quality Control Manager (QCM). The QCM will enter the deficiencies in a master deficiency-tracking log. The QCM and the SSHO will discuss the existence of the deficiency with the appropriate work force individual(s) responsible for its correction.

8. Accident Reporting

a. Exposure Data (man-hours worked)

Sevenson shall submit the USACE form for record of hours and accidents to the COR monthly by the Project Manager via the Quality Control Manager through the Resident Management System.

b. Reporting of Accidents

Employees are responsible for reporting all injuries or occupationally related illnesses as soon as possible to the SSHO or Supervisor.

All incidents (including property damage) and accidents will be reported as soon as possible, but no later than 8 hours post-accident for first aid cases and property damage less than \$2,000; and not later than 4 hours for accidents considered to be recordable per 29 CFR 1904, or property damage greater than \$2,000, or high visibility accident, or/and accident or any incident that involves any weight moving equipment accident to the COR. An USACE ENG FORM 3394 accident/incident report will be completed as soon as possible but no longer than 24 hours post-accident. This report is utilized in the event of injuries, off-site releases, utility breaks, or accidents. Immediately following the incident/accident, the Site Superintendent and the SSHO will initiate an investigation.

A preliminary accident notification (PAN) worksheet shall also be completed and submitted with completed ENG 3394. Near misses shall be adequately investigated as well. Although no formal report is required for submission, all human, technological, and organizational causations shall be investigated for all mishaps. If necessary, corrective actions shall be developed for each of these respectively.

c. Immediate Notification Requirements

The following types of accidents require immediate notification to the COR:

- a. A fatal injury/illness
- b. A permanent total disabling injury/illness
- c. A permanent partial disabling injury/illness
- d. Three or more persons hospitalized as inpatients as a result of a single occurrence
- e. Three or more individuals become ill or have a medical condition which is suspected to be related to a site condition, or a hazardous or toxic agent on the site

- f. \$200,000 or greater accidental property damage or damage in an amount specified by USACE in current accident reporting regulations
- g. An Arc Flash Incident/Accident
- *h*. Three or more individuals become ill or have a medical condition with is suspected to be related to a site condition, or a hazardous or toxic agent on the site.

Note: for accidents that require immediate notification to the COR - preserve/cordon of the scene after emergency response, and take and record independent witness statements. Prepare for a CENAN BOI team to arrive within 24 hours

Except for rescue and emergency measures, the accident scene shall not be disturbed until it has been released by the SSHO and COR.

"Near misses" will be documented by the SSHO and discussed at the morning safety briefings to educate the work force to potentially hazardous operations or practices.

Accident photos will be taken, captioned, recorded, and stored according to EPA Guidance: Digital Camera Guidance for EPA Civil Inspections and Investigations, US. EPA – Office of Compliance (Mail code: 2223A) National Compliance Monitoring Policy Branch 1200 Pennsylvania Avenue, N.W. Washington, D.C. 20460 EPA-305-F-06-002.

9.	Plans (Programs, Procedures) Required by the Safety Manual		

a. Layout Plans A Temporary Facilities Pan has been prepared and submitted under separate cover.

b. Emergency Response Plan

(1) Procedures and Tests

Emergency plans to assist employee safety in case of a fire or other emergency has been prepared in writing and will be reviewed with all affected site personnel. Emergency plans will be tested at least once annually to demonstrate their effectiveness. At least one emergency evacuation drill will be performed within the first 60 days of remediation activities. On-site emergency planning shall be integrated with off-site emergency support. The South Plainfield Bureau of Fire Prevention, South Plainfield Emergency Management, and JFK Medical Center Emergency Services Depart have been notified about the work to be performed at the Site.

Since the site work involves working with hazardous, toxic, or radioactive waste (HTRW) guidance in section 28.G in the USACE EM 385-1-1 will dictate the Emergency Response Plan information. The Emergency Response Plan information for the project is located in section 12 of Appendix B (SSHP).

All on site personnel will assemble/muster at the main gate located adjacent to the Spicer Road and New Market Road intersection. Any personnel working at the residential properties will maintain their position until such time as they receive information regarding the site emergency. Access to the site will be restricted.

(2) Spill Plans

A Spill Prevention Controls and Countermeasures Plan is not required for this project. However, the following will be implemented during minor spills at the site. The following spill response is for the project.

Spill/Release Reporting

Spill and release reporting shall be governed by the regulatory requirements of the New Jersey Department of Environmental Protection (NJDEP). The NJDEP requirement states: "The owner or operator of any facility (not just major facilities) must notify the NJDEP of any discharge within **15 minutes** after the discharge has been discovered or should have been discovered."

Definitions

A "spill" shall be defined as any deminimus quantity of a potentially toxic or hazardous substance that contacts **off-site** soils or waters of the state.

If a spill of liquid occurs and the liquid is presumed clean and then by subsequent testing is found to be toxic or hazardous, the event must be reported as a spill.

If a liquid spill contacts an impervious surface and is contained, it is defined as a leak and need not be reported.

Reporting Procedure

At the initial discovery of any spill or release of a stored material or hazardous waste conveyance or storage system, the individual shall:

 Immediately contact the Project Manager or the SSHO listed in Emergency Phone Numbers Table

- 2. If the Project Manager or the SSHO are unavailable, contact the NJDEP Emergency Action Hotline.
- 3. Once contact with the Hotline Operator has been established, provide the following information:
 - The company name (Sevenson Environmental Services, Inc.), your name, facility address, and facility phone number
 - ➤ The location of the spill/discharge
 - Common name of the substance discharged (i.e., fuel, other hazmat)
 - ➤ The estimated quantity of each substance discharged
 - ➤ The date and time the discharge began, was discovered, and ended (if it has ended by the time of notification)
 - The actions proposed to contain, clean up, and remove the substances discharged (i.e., source stopped by shutting off the well, area affected was bermed, barricaded, and will be sampled to determine further action)
 - ➤ The person, event, or equipment responsible for the discharge (disclosure pending investigation)
 - ➤ Request and document the case number assigned to your call
 - ➤ Complete "ENG 3394" and "Sevenson Incident Report"

Responsibilities

The Superintendent or SSHO shall serve as the Emergency Response Coordinator (ERC) and direct emergency activities at the spill and confirm that all safety and health equipment and supplies needed for a spill are readily available and properly used (i.e., adsorbent materials, booms, etc.).

External response agencies shall be contacted at the discretion of the ERC.

During a hazardous materials incident response and during spill clean-ups, the SSHO shall:

- ➤ Oversee the evacuation of non-essential project personnel.
- > Provide care for any injured personnel (assess need for decontamination first)
- Establish site zones and evaluate conditions subject to change.
- Assist in the donning of PPE and respiratory equipment.
- ➤ Provide air monitoring for spills involving hazardous waste.
- ➤ Monitor response members for heat related illness.
- ➤ Initiate additional monitoring as necessary to demonstrate the protection of off-site receptors.
- > Provide clean-up guidance.

The ERC shall be responsible for directing the clean-up activities of the response team. The ERC shall remain at the spill scene during clean-up activities until the scene is secured. At the earliest convenience, the ERC shall notify the Project Manager and the

COR.

Operations may be resumed in the affected area(s) only after the emergency condition has been resolved. The ERC shall determine if a reportable quantity has been involved. Concise, accurate documentation will be made and included with the proper company reporting and investigation forms.

The Project Manager, in concurrence with the Site COR, will be responsible for providing the State with a written confirmation of the discharge within thirty days of its occurrence. Completion of this report may also involve input from the response team members.

Emergency Response Equipment

The following emergency equipment shall be maintained in the facility's decontamination room in sufficient quantities and be readily accessible to response personnel in the event of emergency response:

- ➤ Poly coated Tyvek coveralls.
- ➤ Neoprene and nitrile outer chemical resistant gloves.
- > PVC boots and latex boot covers.
- Face shields, ear plugs

The following emergency response supplies shall be maintained in the process area in sufficient quantities and be readily accessible for response personnel

- ➤ Water absorbing socks
- Oil absorbing pads
- ➤ Vermiculite/Oil Dry
- Plastic shovels
- > Squeegee
- ➤ Empty 55 gallon open top steel drums or other sufficient container based on size of the release.

(3) Firefighting Plan

All Sevenson personnel will be trained in the use of fire extinguishers but will not be obligated to fight a fire unless they feel safe to do so.

In the event of a fire, all non-ancillary personnel will be asked to evacuate the site. Section 12 of the SSHP provides greater detail for fire related emergencies at the site.

(4) Posting of Emergency Telephone Numbers

Emergency numbers, instructions for reporting, and directions to the medical facilities will be posted in each office trailer, each site support vehicles that may be used to transport injured personnel, project safety bulletin board, and any other place the SSHO deems necessary to convey the information to the workforce.

(5) Man Overboard

This section is not applicable to the project.

(6) Medical Support

There will be a minimum of two personnel at the site that are trained in and will be required to perform first aid and/or CPR while work is being performed. The SSHO and health and safety technicians will be assigned to this obligation. Currently Mr. Tschudi is assigned to the site as the SSHO. At least one more individual will be responsible for ensuring the minimum number of qualified personnel are available to provide first aid/CPR duties. A list of qualified personnel who are responsible for this duty will be posted at all first aid kits as well as the job site safety bulletin board.

Personnel who are assigned the responsibility to provide medical assistance or first aid will have documented training in first aid and CPR/AED and will be included in Sevenson's Blood Borne Pathogen Program.

A large first aid kit will be provided for every 25 employees at the site. Smaller, portable first aid kits will be made available at each contamination reduction zone where HTRW is being performed. First aid kits will meet ANSI Z308.1 standards.

c. Prevention of Alcohol and Drug Abuse Plan

Sevenson Environmental Services, Inc. in the interest of promoting occupational safety and health, complying with applicable laws and regulations, and complying with the contractual requirements of many clients, has instituted a substance abuse program for all employees.

STATEMENT OF COMPANY POLICY:

As a condition of employment, Sevenson Environmental Services, Inc. and its subsidiaries, require all employees to strictly observe and to fully cooperate in the implementation of the Sevenson Substance Abuse Program: This program:

- 1. Forbids the unlawful manufacture, distribution, dispensation or medically unauthorized use or possession of alcohol, drugs and controlled or illegal substances or associated paraphernalia at the jobsite
- 2. Forbids being at work in an impaired condition due to the influence of alcohol, drugs, or controlled substances.
- 3. Requires employees taking a drug or prescribed medication which is known as possibly affecting or impairing judgment, coordination or the ability to perform work in a safe and productive manner, to ascertain what work restrictions, if any, are deemed necessary prior to starting work from their physician.
- 4. Provides for disciplinary actions including termination for violations of company policy. Management, at its discretion, may require the satisfactory participation in a drug abuse or rehabilitation program of an employee who violates this policy.
- 5. Reserves the company's right to conduct searches and inspections including drug screening to determine if the employee is in possession of, or under the influence of alcohol, drugs, or controlled substances. The company will conduct alcohol and drug screening and/or searches as required by any applicable federal or state statue or regulation or contract provision.
- 6. Provides for actions to be taken if an employee refuses to submit to a search or inspection, refuses to give a urine sample, or is found in possession of, or under the influence of alcohol, drugs, or controlled substances.
- 7. Provides that, depending on circumstances, other actions, including notification of appropriate law enforcement agencies, may be taken.
- 8. Requires that all employees be informed of this policy and that any employee who is convicted under a criminal drug statute for a violation occurring in the workplace report that conviction to his or her supervisor no later than five days after the conviction.

RESPONSIBILITIES

COMPANY MANAGEMENT

To implement the Sevenson Substance Abuse Program, company management undertakes the following responsibilities:

1. To state clearly and unequivocally that the unlawful manufacture, distribution, dispensation, or medically unauthorized use or possession of alcohol, drugs and

- controlled or illegal substances, or associated paraphernalia is prohibited at all of our jobsites;
- 2. To communicate the program requirements to all employees;
- 3. To train supervisors so that they become aware of symptoms that could be caused by alcohol and/or drug abuse and that in effect render the employee questionable for duty;
- 4. To educate employees in regard to the health and safety hazards of the abuse and experimentation with drugs and/or alcohol;
- 5. To encourage employee rehabilitation prior to or coincidental with disciplinary action.

COMPANY SUPERVISION

In implementing the Sevenson Substance Abuse Program, company supervisors will:

- 1. Be responsible for overseeing the productivity and safety of their work areas.
- 2. If an employee appears to be impaired due to the influence of alcohol or drugs, to the extent practical and reasonable:
 - a. Ask another management representative to observe the behavior.
 - b. Inform the employee that he/she appears unfit to work.
 - c. Escort the employee to the designated medical facility for clinical assessment, with his/her consent.
 - d. Have the employee sign an alcohol and drug screening form.
 - e. If the employee refuses to go to the medical facility for the evaluation or sign the consent form, inform the employee that this refusal is a failure to follow a supervisor's request which is a violation of company policy and that discipline will follow.
 - f. Document the facts of the situation.
 - g. Follow management's direction regarding disciplinary action.

EMPLOYEES

As part of their duty to abide by the Sevenson Substance Abuse Program, employees will:

- 1. Abide by all company work rules concerning the safety and security of the jobsite.
- 2. Not come to work while impaired by the effects of drugs or alcohol.
- 3. If affected personally by a drug or alcohol problem, seek a confidential professional assessment and referral for appropriate treatment.
- 4. If taking a drug or prescribed medication that may possibly affect ability to perform work in a safe and effective manner, ascertain what work restrictions, if any, are necessary prior to starting work.

FREQUENCY OF TESTING

There are five frequencies for testing. These will be:

- 1. Pre-employment
- 2. For Cause
- 3. Random
- 4. Return from Rehabilitation
- 5. Annual

Pre-employment testing will be conducted to allow the company the opportunity to screen out prospective employees whose drug use might present a threat to the safety, productivity, add security of the work environment.

For Cause testing will occur when the employee exhibits certain behaviors that indicate he/she may be impaired.

Random testing will occur throughout the year. Employee selection will be done on a strictly random basis and a selected employee will be placed back in the pool i.e., once selected an employee may be selected again.

Return from Rehabilitation - prior to being reinstated into the work force an employee must undergo a substance abuse test.

Annual - at least once a year all employees will be required to undergo a drug test.

CONTENT OF TEST

Testing will be conducted for:

	Drug	Screening Test Cutoff Level (ng/ml)	Confirmation Test Cutoff Level (ng/ml)
1.	Cannabidiol	50	15
2.	Cocaine	300	150
3.	Opiates Morphine Codeine	300 N/A N/A	N/A 300 300
4.	Amphetamines	1,000	500
5.	Barbiturates	300	300
6.	Benzodiazepines	300	300
7.	Phencyclidine (PCP)	25	25
8.	Methadone	300	300
9.	Alcohol	0.04% by volume or 0.004g % = (40 mg/dl)	0.04% by volume or 0.004g % = (40 mg/dl)

All testing will be conducted under strict confidentiality and specimen security. There will be no intrusive testing, i.e., blood tests, used for screening, only urine analysis. To verify the integrity of the specimen, employees will be accompanied by the clinic's specimen custodian, but will <u>not</u>

be under direct observation while the sample is obtained. The custodian will verify with the employee that the sample is properly identified and labeled.

MEDICAL REVIEW OFFICER

Dr. Peter Greaney or his designee of Work Care will be the Medical Review Officer. Samples will be collected locally by a contracted medical clinic. The collection clinic will ship samples to a laboratory directed by the Medical Review Officer. Results are reported by the laboratory directly to Dr. Greaney, who will make the appropriate review and recommendation(s).

The result and recommendation(s) from the Medical Review Officer will be sent to the HSM. The HSM will be responsible for determining the course of action for an employee that fails the drug screen.

DEFINITIONS

Impaired Condition - Inability to perform the essential functions of the job effectively and in a safe manner.

Under the Influence - Workplace behavior indicates that employee may have a prohibited drug or substance in his/her system.

Pre-employment Testing - Prequalification for prospective employees to provide a body substance sample for drug testing.

Random Testing - Subject to drug testing at anytime.

Annual Testing - Qualification once a year to assume any position by providing a body substance sample for testing.

Reasonable Belief - Behavior indicates that employee is under the influence of drugs. This belief is based on objective, articulate facts.

Legal or over-the-counter drug - Drug prescribed by a licensed physician that does not impair employee's ability to effectively work.

Illegal Drug - Drugs not prescribed by a licensed physician for use by the person possessing them. (Amphetamines, Marijuana, Cocaine, Opiates, Phencyclidine, Alcohol, Barbiturates).

Unauthorized Drugs - include excessive quantities of prescribed drugs, which may adversely influence performance or behavior.

Copies of the above drug testing policy (Sevenson's Substance Abuse Program) will be provided to all employees. Employees will be asked to sign an acknowledgement form indicating that they have received a copy of the drug testing policy. Questions concerning this policy or its administration should be directed to the Human Resources Department.

d. Site Sanitation Plan

Sevenson will establish and maintain hygienic sanitation provisions for all employees in all areas of the site.

Housekeeping

All areas will be maintained as clean as possible based on the nature of work being performed. Regular housekeeping activities will be conducted in order to maintain safe and sanitary conditions at the Site.

The floor of every workroom shall be kept as dry as possible. Drainage will be maintained where wet processes are used, false floors, platforms, or other dry standing places shall be provided when possible.

To help the cleaning process, every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, clutter, and unnecessary holes and openings.

Drinking Water

Sevenson will supply and adequate supply of potable water in all areas of the site where work is being performed for consumption and personal cleaning. Cool drinking water will be provided during hot weather. All potable water will meet the EPA requirements for drinking water.

Only approved potable water systems will be used to deliver water to the site. Construction trailers will be supplied with potable water through a local vendor in 5-gallon water jugs and a heated/cooled dispensing station. Crews in the field will be supplied with cooled drinking water in clean insulated coolers with a tap located on the bottom of the jug. Field coolers will be marked "DRINKING WATER" and may not be used for other purposes.

Note: Open containers such as barrels, pails, or tanks, or any container (whether with or without a fitted cover) from which the water is dipped or poured are prohibited for drinking water.

Drinking water fountain dispensers shall have a guarded orifice. The use of a common cup (a cup shared by more than one person) on other common utensils is prohibited. Workers will be required to use cups when drinking from water coolers, the use of hands or mouth to tap is prohibited. Unused cups shall be kept in sanitary containers and a waste container will be provided for used cups.

Non-Potable Water

Any outlet that dispenses non-potable water will be conspicuously marked "CAUTION – WATER UNSAFE FOR DRINKING, WASHING, OR COOKING". There will be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing non-potable water.

Non-potable water may be used for cleaning work areas, except where food is prepared or consumed, or shower/break rooms.

Toilets

Sevenson will provide toilets and hand washing facilities at the site to comply with the following.

Separate toilet facilities shall be provided for each sex where the building is connected to a sanitary sewer system in accordance with USACE EM 385-1-1 Table 2-1.

Table 1 – USACE Table 2-1 Minimum Toilet Facilities (Non Construction Sites)

TABLE 2-1

MINIMUM TOILET FACILITIES (OTHER THAN CONSTRUCTION SITES)

Number of employees	Minimum number of Toilets ¹
1 to 15	One (1)
16 to 35	Two (2)
36 to 55	Three (3)
56 to 80	Four (4)
81 to 110	Five (5)
111 to 150	Six (6)
Over 150	Refer to Note ²

NOTE: ¹Where toilet facilities will not be used by women, urinals may be provided instead of commodes, except that the number of commodes in such cases shall not be reduced to fewer than 2/3 of the minimum number specified.

Each lavatory shall be provided with hot and cold running water or tepid running water.

Hand soap or other similar cleansing agent will be provided along with disposable paper hand towels. An adequate supply of toilet paper and a holder will be supplied. Toilets will be separated from other toilets with barrier walls and a lockable door to provide privacy. Adequate lighting will be provided. Each commode will be equipped with a seat and seat cover.

Toilets that only allow for one person use at a time may be used by either sex. However, single toilet rooms that have more than one commode (i.e., commode and urinal in same room for either sex), only one commode may be counted in the inventory. Washrooms will be routinely cleaned and maintained in good order.

Adequate ventilation will be provided. If windows are used for ventilation they will be screened.

Toilet facilities used at the construction site will be provided as follows:

Where sanitary sewers are not available chemical toilets will be used. Each toilet shall be equipped with a toilet seat and toilet seat cover. Each toilet facility (unless specifically designed and designated for females) will be equipped with a metal, plastic, or porcelain urinal trough and will be supplied with an adequate supply of toilet paper and toilet paper holder.

Toilets shall be provided for each sex as indicated in USACE EM 385-1-1 Table 2-2.

²One additional toilet fixture for each additional 40 employees.

Table 2 – USACE Table 2-2 Minimum Toilet Facilities (Construction Sites)

TABLE 2-2 MINIMUM TOILET FACILITIES (CONSTRUCTION SITES)

Number of employees	Minimum number of Toilets ¹
20 or fewer	One (1)
20 or greater	One (1) toilet seat and
	One (1) urinal per 40 workers.
200 or greater	One (1) toilet seat and
	One (1) urinal per 50 workers.

NOTE: ¹Where toilet facilities will not be used by women, urinals may be provided instead of commodes, except that the number of commodes in such cases shall not be reduced to fewer than 2/3 of the minimum number specified.

Separate toilet facilities don't have to be provided as long as the toilet room can be occupied by only one person at a time, can be locked from the inside, and has a toilet seat. In areas where it is not practical to provide running water, hand sanitizer or a portable hand wash facility will be provided.

Note: Many hand sanitizers contain flammable liquids and personnel shall be trained regarding their use, storage, and safety precautions.

Toilet facilities will be constructed so occupants are protected against weather and falling objects. All cracks will be sealed, the door tight fitting, and capable of being latched. Toilets will be equipped with ventilation. Windows and ventilation will be protected by screens. Seat boxes will be vented with a 4-inch pipe to the outside of the toilet box with the vent pipe intake located 1-inch below the seat. All toilets will be provided with natural illumination during day light hours. In the event of night work the units will be place near a light plant or artificial lighting will be provided if necessary based on toilet placement.

An outside vendor will be tasked with supplying chemical toilets. As part of the contract, routine cleaning services will be provided by the vendor. The vendor will be responsible for all sewage waste generated and will be included in the cost of the contract.

Employees at temporary field locations for short duration projects will be within driving distance to a toilet facility so additional facilities will not be required.

Washing Facilities

Washing facilities will be provided and maintained in a sanitary condition at toilet facilities unless it is not practical to provide running water. In areas where it is not practical to provide running water, hand sanitizer or a portable hand wash facility will be provided.

Washing facilities will be in close proximity to the worksite.

Showers

Showers are not anticipated for the project. In the event showers become necessary, one shower for every 10 workers will be supplied. There will be separate shower facilities for each sex if required.

Changing Rooms

Changing rooms will be provided for workers who wish to change into different clothing.

Clothes Drying Facilities

Clothes drying facilities are not applicable for this project.

Food Service

No employee will be allowed to consume or store food or beverages in a toilet room or in any are exposed to hazardous materials. There will be no commercial food services for this project at the site.

Waste Disposal

A dumpster will be provided to store and remove all garbage and rubbish produced at the jobsite. An adequate number of trash cans will be provided in all office areas, break trailers, and job site locations to facilitate that all trash is properly disposed of to avoid creating a menace to health.

Vermin Control

Workplaces will be constructed, equipped, and maintained, as practicable as possible to prevent the entrance or harborage of rodents, insects, or other vermin. A continuing and effective extermination program will be instituted when the presence of vermin is observed. A licensed exterminator or pest control company will be utilized to provide this service.

e. Access and Haul Road Plan

A Temporary Facilities Pan has been prepared and submitted under separate cover. This plan contains the access and haul road information for the project.

f. Respiratory Protection Plan

Sevenson's Respiratory Protection Plan is located in Appendix F.

g. Health Hazard Control Program

The Health Hazard Control Program information is discussed in the Site Safety and Health Plan located in Appendix B.

h. Hazard Communication Program Sevenson's Hazard Communication Program is located in Appendix G.

Process	Safety	Manag	ement	Plan

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A Process Safety Management Plan is not applicable to this project.

i.	Lead Abatement	Plan

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A Lead Abatement Plan is not applicable for this project.

j. Asbestos Abatement Plan

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An Asbestos Abatement Plan is not applicable for this project.

n. Radiation balety i logian	k.	Radiation	Safety	Program
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A Radiation Protection Program is not applicable for this project.

l. Abrasive Blasting

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An Abrasive Blasting Plan is not applicable for this project.

Heat Stress

Heat stress may be a hazard for workers wearing protective clothing even if the temperature is moderate. The same protective materials that shield the body from chemical exposure prevent heat and moisture from dissipating. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient temperature and the work being performed, heat stress can occur very rapidly - within as little as 15 minutes.

In its early stages, heat stress can cause discomfort and inattention, resulting in impaired functional abilities that can threaten the safety of both the individual and his co-workers. Personnel will be instructed to recognize the symptoms of the onset of heat stress. The SSHO may periodically check all personnel working in thermal stress areas to verify that the symptoms are recognized. Frequency of heat stress monitoring and checks for symptoms of heat stress will increase with rises in air temperature, humidity, and the degree of exposure to high temperature areas.

When workers are in Level C PPE or higher, an ambient temperature of 72.5° F will be used as an action level to implement pulse monitoring, oral temperatures, and administrative controls, including rest breaks and work rotation to prevent employees from experiencing heat-related health effects including weight loss. The guidance for workers wearing permeable clothing is specified in the current version of the ACGIH Threshold Limit Values for Heat Stress. If actual clothing differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, changes should be made to the monitoring requirements and work rest period to account for these differences. *Table 3 – "Frequency of Physiological Monitoring*" provides the suggested frequency of physiological monitoring for fit and acclimatized workers.

Free	Table 3 – quency of Physiological Monito	ring
Adjusted Temperature Calculation	Normal Work Clothing	Impermeable Clothing
90 °F (32.2 °C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5 - 90.0 °F (30.8 – 32.2 °C)	After each 60 minutes of work	After each 30 minutes of work
82.5 - 87.5 °F (28.1 – 30.8 °C)	After each 90 minutes of work	After each 60 minutes of work
77.5 - 82.5 °F (25.3 - 28.1 °C)	After each 120 minutes of work	After each 90 minutes of work
72.5 - 77.5 °F (22.5 - 25.3 °C)	After each 150 minutes of work	After each 120 minutes of work

The following parameters should be used when monitoring workers:

Heart rate - Count the radial pulse as early as possible in the rest period to ensure a more accurate reading. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period at the same length. If, at the end of the following work period, the heart rate still exceeds 110 beats per minute, shorten the work period again by one-third.

Oral Temperature - The utilization of oral temperature applies to the time immediately after the worker leaves the contamination reduction zone. Using a clinical thermometer, take the

temperature for three minutes. If the oral temperature exceeds 99.6 °F (37.6 °C), shorten the next work cycle by one-third, without a change to the rest period. If the oral temperature still exceeds 99.6 °F (37.6 °C) at the end of the following work period, shorten the next work cycle by one-third. Do not permit a worker to perform duties requiring a semi permeable or impermeable garment if the oral temperature exceeds 100.4 °F (38.1 °C). Ear canal readings are a valid method to monitor the temperature of workers who remain in the contamination reduction zone.

The oral temperature shall not exceed 100.4 °F. If an employee's pulse rate exceeds the maximum age-adjusted heart rate (0.7(220-AGE)), and/or the oral temperature exceeds 100.4 °F, the employee shall be required to stop work and rest at the work site or move to an airconditioned room after proper decontamination. The affected employee may be allowed to return to work after his/her pulse rate has dropped below 100 beats per minute. The SSHO in consultation with the affected employee, and medical personnel if necessary, shall determine whether an employee is ready to return to work. Fluids shall be provided and rest breaks will be taken. The frequency of breaks will increase with the temperature. Such things as cooling vests, portable fans, and breaks in air-conditioned areas shall be used if necessary.

When practicable, the most labor-intensive tasks should be carried out during the coolest part of the day. If necessary, a work/rest regimen will be instituted. The work/rest regimen consists of alternating periods of work and rest. The duration of these alternating periods will depend on the environmental conditions at the job site, such as, the Wet Bulb Globe Temperature, duration, and type of activities performed.

A worker who becomes irrational or confused, or collapses on the job should be considered a heat stroke victim and medical help should be called immediately. Early recognition of symptoms and prompt emergency treatment is the key to aiding someone with heat stroke. While awaiting the ambulance, begin efforts to cool the victim down by performing the following:

- Move the victim to a cooler environment and remove outer clothing.
- Wet the skin with water, and fan vigorously or repeatedly apply cold packs or immerse the victim in a tub of cool (not ice) water.
- If no water is available, fanning will help promote cooling.

Any individual showing susceptibility to heat stress will be referred to a physician for evaluation. In addition, the use of prescription drugs can also contribute to the effects of heat stress and will be considered during the assignment of work. Cool (50°-60°F) water or a sport drink, such as Gatorade, will be made available to workers and encourage them to drink small amounts frequently, (e.g., one cup every 20 minutes). Ample supplies of liquids will be placed close to the work area.

Cold Stress

Cold injury (frostbite and hypothermia) and impaired ability to work are hazards to persons working outdoors in low temperatures at or below freezing. Extreme cold for a short time may cause severe injury to exposed body surfaces (frost nip or frostbite), or result in profound generalized cooling (hypothermia). Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ears, are the most susceptible to frost nip or frostbite.

Two factors influence the development of a cold weather injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in

combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked. The wind chill factor is the cooling effect of any combination of temperature and wind velocity or air movement. *Table 4 – Wind Chill Index* should be consulted when planning for exposure to low temperatures and wind. The wind chill index does not take into account the specific part of the body exposed to cold; the level of activity, which affects body heat production; or the amount of clothing being worn.

When practicable, the most sedentary tasks should be carried out during the warmest part of the day. If necessary, a light-work rotation schedule should be instituted or the work area heated. Heavy work that will cause heavy sweating resulting in wet clothing must also be monitored. The work/rest regimen consists of alternating periods of work and rest. The duration of these alternating periods will depend on the environmental conditions at the job site, (i.e., the Wind Chill Temperature, duration, and type of activities performed).

When air temperatures are 36 °F or less, workers who become immersed in water or whose clothing becomes considerably wet shall immediately change into dry clothing/blankets and be treated for hypothermia. Blankets will be included as part of the first aid equipment for activities where workers can become immersed in water or considerably wet. Workers will be required to have a set of dry spare change of clothing available at the Site.

If a worker expresses a concern about their ability to work in a cold environment, they are required to provide medical documentation on their ability to work in temperatures at 30 °F or below. If medical documentation shows they are suffering from diseases or taking medication that interferes with normal body temperature regulation or reduces tolerance to work in cold environments, they will be excluded from cold weather tasks.

	Table 4 – Wind Chill Index												
Wind	Wind Actual 7								° F)				
(mph)	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
	Equivalent Temperature (°F)												
5	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40
10	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47
15	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51
20	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55
25	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58
30	22	16	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60
35	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62
40	20	13	6	-1	-8	-15	-22	-29	-36	-42	-50	-57	-64
T = Air Te	Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V0.16) + 0.4275T(V0.16) T = Air Temperature (°F) V = Wind Speed (mph) Frostbite occurs in 45 minutes or less					SS							

Table 5 - Maximum Daily Time Limits for Exposure at Low Temperatures gives the recommended time limits for working in various low temperature ranges.

Maximum Dai	Table 5 – ly Time Limits for Exposure at Low Temperatures
Temperature Range (°F)	Maximum Daily Exposure
30 to 0	No limit, providing that the person is properly clothed.
0 to -30	Total work time: 4 hours. Alternate 1 hour in and 1 hour out of
	the low-temperature area.
-30 to -70	Two periods of 30 minutes each at least 4 hours apart. Total low
	temperature work time allowed is 1 hour.
-70 to -100	Maximum permissible work time is 5 minutes during an 8-hour
	working day. At these extreme temperatures, completely
	enclosed headgear, equipped with a breathing tube running under
	the clothing and down the leg to preheat the air, is recommended.

Table 6 - Work/Warm-up Schedule applies to any 4-hour work period with moderate to heavy work activity, warm-up periods of ten (10) minutes in a warm location and an extended break (e.g., lunch) at the end of the 4-hour period in a warm location. For light-to-moderate work (limited physical movement) apply schedule one step lower. For example, at -35 °C (-30 °F) with no noticeable wind, a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period.

Table 6 – Work/Warm-up Schedule											
Air Tempera Sl	•	No Noti Wi		able 5 mph Wind		10 mph wind		15 mph wind		20 mph wind	
°C (approx.)	°F (approx.)	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks
-26° to -28°	-15° to -19°	Norm	1	Norm	1	75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	Norm	1	75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min	5		nergency
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5		nergency		Should ase
-38° to -39°	-35° to -39°	40 min	4	30 min	5		nergency		Should ase		
-40° to -42°	-40° to -44°	30 min	5		nergency		Should ase				
-43° & below	-45° & below	Non-Em Work S Cea	Should		Should ease		-				

To guard against cold injuries, workers should wear appropriate clothing and use warm shelters for removing personal protective equipment. The personnel decontamination trailer will be used as a warm shelter when required. The SSHO may periodically monitor workers' physical conditions, specifically checking for symptoms of frostbite.

Solar Radiation Protection

Where employees are exposed to solar radiation for short periods and there is a potential for sunburn or exposure for prolong periods where long-term exposure could lead to health effects such as skin cancer sunscreen will be provided to prevent exposure. Sunscreens will be used only in accordance with the manufactures recommendations or instructions.

n.	Crystalline S	ilica Monito	oring Plan
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A Crystalline Silica Monitoring Plan is not applicable for this project.

o. Night Operations Lighting Plan

The SSHO will verify proper lighting is provided at the Site during night operations. Lighting requirements will be addressed during the preparatory phase meeting for each operation. The minimum lighting requirements listed in EM 385-1-1 Table 7-1 will be maintained at all times during nighttime operations.

Table 7 – USACE Table 7-1 Minimum Lighting Requirements

EM 385-1-1 15 Sep 08

TABLE 7-1
MINIMUM LIGHTING REQUIREMENTS

Facility or function	Illuminance – lx (lm/ft²)
Accessways	
- general indoor	55 (5)
- general outdoor	33 (3)
- exitways, walkways, ladders, stairs	110 (10)
Administrative areas (offices, drafting and	540 (50)
meeting rooms, etc.)	
Chemical laboratories	540 (50)
Construction areas	
- general indoor	55 (5)
- general outdoor	33 (3)
- tunnels and general underground work	55 (5)
areas (minimum 110 lx required at	W-41 - 50
tunnel and shaft heading during	
drilling, mucking, and scaling)	
Conveyor routes	110 (10)
Docks and loading platforms	33 (3)
Elevators, freight and passenger	215 (20)
First-aid stations and infirmaries	325 (30)
Maintenance/operating areas/shops	
- vehicle maintenance shop	325 (30)
- carpentry shop	110 (10)
- outdoors field maintenance area	55 (5)
- refueling area, outdoors	55 (5)
- shops, fine detail work	540 (50)
- shops, medium detail work	325 (30)
- welding shop	325 (30)
Mechanical/electrical equipment rooms	110 (10)
Parking areas	33 (3)
Toilets, wash, and dressing rooms	110 (10)
Visitor areas	215 (20)
Warehouses and storage rooms/areas	
- indoor stockroom, active/bulk storage	110 (10)
- indoor stockroom, inactive	55 (5)
- indoor rack storage	270 (25)
- outdoor storage	33 (3)
Work areas – general (not listed above)	325 (30)

p. Fire Prevention Plan

Fire on construction projects is a constant hazard that can cause loss of life, equipment and material. To assist in preventing fires on construction projects, all personnel must comply with the following safe work practices and procedures:

Major Workplace Fire Hazards

Major workplace fire hazards for this project included; flammable material storage areas, fuel dispensing stations or equipment; and fossil fueled equipment.

Potential Ignition Sources

Potential ignition sources include: flame or heat from hot work operations; fueling equipment while running or hot surfaces; smoking in non-approved areas; static electricity; lightning; and exhaust of equipment.

Fire Suppression Equipment - Access to all available firefighting equipment must be maintained at all times. Firefighting equipment must be inspected monthly and maintained in operating condition. Defective or exhausted equipment must be replaced immediately. All firefighting equipment should be conspicuously located at each jobsite. One fire extinguisher, rated not less than 10A units, should be provided for each 3,000 ft² of the protected work-zone area. Travel distance from any point of the protected work-zone area to the nearest fire extinguisher must not exceed 100 feet. Extinguishers exposed to freezing conditions will be protected from freezing. Employees should not remove or tamper with fire extinguishers installed on equipment or vehicles or in other locations unless authorized to do so or in case of fire. After using a fire extinguisher, it must be recharged or replaced with another fully charged extinguisher. Extinguishers must be selected based on the anticipated fire hazards. To aid in the proper selection of fire extinguishers, the classes of fires are as follows:

- Class A (wood, paper, trash) use water, dry chemical, or foam extinguisher.
- Class B (flammable liquids, gas, oil, paints, grease) use foam, carbon dioxide, or dry chemical extinguisher.
- Class C (electrical) use carbon dioxide or dry chemical extinguisher.
- Class D (combustible metals) use dry powder extinguisher only.

Responsibility for Maintaining Equipment

The SSHO will be responsible for maintaining fire protection equipment is a working order. He will also be responsible for completing monthly fire extinguisher inspections and scheduling the annual inspection with a licensed fire service contractor.

Personnel Responsible for Controlling Fuel Source Hazards

The Superintendent and SSHO will be responsible for controlling fuel source hazards. The SSHO shall verify that all fuel sources are in compliance with OSHA and NFPA regulations. The Superintendent shall demonstrate personnel assigned to duties that require using fuel source hazards are competent in the assigned task. The Superintendent shall also consult with the SSHO prior to making changes in the flammable materials storage areas at the site.

Housekeeping Procedures

An oily rag refuse will be positioned at each flammable materials storage area for oil and flammable material contaminated rags, towels, or clothing. No combustible material such as wood, hay, other material that will burn may be stored within 25 feet of a flammable material storage area or hot work area. Combustible materials that are to be disposed of are to be placed into a dumpster before leaving the site for the day. Spills will be cleaned up immediately and the absorbent material will be contained in appropriate containers, segregated, and labeled for disposal.

Removal of Waste Material

Waste material will be placed into roll off dumpsters. The roll off dumpsters will be collected by an outside contractor for disposal. Dumpsters will be emptied when full. Dumpsters shall not be overloaded. Material that does not fit into a full dumpster will not be allowed to be placed outside the dumpster for greater than one shift.

Fire Prevention - Internal combustion engine-powered equipment should be located so that exhausts are away from combustible materials. Smoking is permitted in approved areas, only. Flammable material storage areas will be conspicuously posted, "No Smoking, Matches, or Open Flame." Portable battery-powered lighting equipment must be approved for the type of hazardous locations encountered. Combustible materials must be piled no higher than 20 feet (6.1 m). Depending on the stability of the material being piled, this height may be reduced.

Portable fire extinguishing equipment, suitable for anticipated fire hazards on the jobsite, must be provided at convenient, conspicuously accessible locations. Firefighting equipment must be kept free from obstacles, equipment, materials, and debris that could delay emergency use of such equipment. Employees should familiarize themselves with the location and use of the project's firefighting equipment. All oily rags, wastes, and similar combustible materials must be placed in metal containers. The containers must be emptied on a daily basis. Storage of flammable substances on equipment or vehicles should be prohibited unless such unit has adequate storage area designed for such use.

Flammable and Combustible Liquids - Explosive liquids, such as gasoline, will not be used as cleaning agents. Gasoline and similar combustible liquids must be stored, transported, and handled in approved and labeled containers in well-ventilated areas free from heat sources. Approved wooden or metal storage cabinets must be labeled in conspicuous lettering, "Flammable-Keep Fire Away." Storage in an approved storage cabinet should not exceed 60 gallons of flammable, or 120 gallons of combustible liquids. Storage of containers will not exceed 1,100 gallons in any one pile or area. Never place a pile or group within 20 feet of a building. A 12-feet wide access way must be provided within 200-feet of each container pile to permit approach of fire control apparatus. All flammable material storage areas shall be protected with bollards or barriers to prevent damage from moving equipment or vehicles.

Storage areas/tanks shall be surrounded by a curb, earthen dike or other equivalent means of containment of at least 6-inches in height, or to a height that will contain the contents in the event of a leak. When dikes or curbs are used, provisions shall be made for draining off accumulation of ground or rain water or spills of flammable liquids. Drains shall terminate at a safe location and shall be accessible to operations under fire conditions.

The use of flammable liquids and spray finishing needs to conform to the requirements of 1926.66 and 1926.152. Paints and reducers should be stored away from heat sources and out of

the sun. Airless spray-painting apparatus should be of a type approved for hazardous locations. Any electrically or fuel-powered equipment used to mix, convey, and spray flammable and combustible liquids must carry an approval from a nationally recognized testing laboratory. Pneumatically operated equipment is usually suitable for use with flammable and combustible finishes.

Fire Extinguishers - Portable fire extinguishers are provided in adequate number and type (10 lb. ABC) and are located throughout the site. Fire extinguishers are located in readily accessible locations. Fire extinguishers are recharged regularly and the date of last inspection noted on their tags. Extinguishers should be placed free from obstructions or blockage. All extinguishers must be fully charged and in their designated places unless in use. All employees are periodically instructed in the use of extinguishers and fire protection procedures. Fire Extinguishers will be located in the following areas:

- Support Zone (Field): 10 lb ABC multipurpose dry chemical type fire extinguishers will be distributed throughout the support zone. A map shall be posted showing the location of permanently located fire extinguishers.
- Contamination Reduction Zone: (1) 10 lb ABC multipurpose dry chemical type fire extinguishers.
- Exclusion Zone: (1) 10 lb ABC multipurpose dry chemical type fire extinguishers.
- *Equipment:* All of Sevenson's heavy equipment will be supplied with 2 lb ABC multipurpose dry chemical type fire extinguishers.

Flammable Materials Storage Area: (1) 20 lb ABC multipurpose dry chemical type fire extinguisher will be placed no closer than 25 feet but no further than 75 feet from any flammable materials storage area. The extinguisher shall be placed in an area that is readable accessible.

q. Wild Land Fire Management Plan

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A Wild Land Fire Management Plan is not applicable for this project.

r. Hazardous Energy Control Program Sevenson Hazardous Energy Control Program is Located in Appendix H.

s. Critical Lift Plan

Critical lifts are not anticipated at this time. However, a Critical Lift Program has been prepared for this project and is located in Appendix K in the event a Critical Lift Plan needs to be completed to support project operations.

t. Contingency Plan for Floating Plants for Severe Weather
Blank Page
A Contingency Plan for Floating Plants for Severe Weather is not applicable for this project.

u. Float Plan

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A Float Plan is not applicable for this project.

v. Site-Specific Fall Protection and Prevention PlanA Fall Protection Plan is not applicable for this project.					

w. Demolition Plan

A Demolition Plan shall be submitted under separate cover if demolition of a structure becomes necessary. The accepted Demolition Plan shall be amended to this plan prior to the start of demolition activities.

x. Excavation and Trenching Plan

The Excavation Plan is located in Appendix J.

y. Emergency Rescue Plan (Tunneling)

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An Emergency Rescue Plan for tunneling is not applicable for this project.

z. Underground Construction Fire Prevention and Protection Plan						
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An Underground Construction Fire Prevention and Protection Plan is not applicable for this project.						

aa.	Com	pressed	Air	Plan
cici.	COIII	probboa	4 711	I IMI

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A Compressed Air Plan is not applicable for this project.

bb. Formwork and Shoring Erection and Removal Plan				
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A Formwork and Shoring Erection and Removal Plan is not applicable for this project.				

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A Pre Cast Concrete Plan is not applicable for this project.

dd. Lift Slab Plan

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A Lift Slab Plan is not applicable for this project.

ee. Steel Erection Pla

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A Steel Erection Plan is not applicable for this project.

 $\emph{ff.}$ Site Safety and Health Plan for HTRW Work

A Site Safety and Health Plan for HTRW work has been prepared for this project and is located in Appendix B.

gg. Blasting Safety Plan

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A Blasting Safety Plan is not applicable for this project.

hh. Diving Plan

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A Diving Plan is not applicable for this project.

ii. Confined Space Program Sevenson's Confined Space Program is located in Appendix I.

10. Risk Management Process

Before beginning each work activity involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or sub-contractor is to perform the work, an Activity Hazard Analysis (AHA) shall be prepared.

The AHA shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable risk.

The names of the Competent/Qualified Person(s) required for a particular activity shall be identified and included in the AHA.

The AHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change in competent/qualified person(s).

If more than one Competent/Qualified person is used on the AHA activity, a list of names shall be submitted as an attachment to the AHA. Those listed must be Competent/Qualified for the type of work involved in the AHA and familiar with current site conditions.

The AHA for this project are located in Appendix E.

11. Abbreviated APP for Limited-Scope Service, Supply and R&D Contracts		
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This section is not applicable for this project.		

Appendix A

Summary of Training and Work Experience of Safety

Personnel



Name: PAUL J. HITCHO, Ph.D., CIH

Education: PhD, Biology, University of Notre Dame, 1970

BA, Biology, St. Vincent College, 1966

Certifications and Honors: Board-Certified Industrial Hygienist, American Board of

Industrial Hygiene

National Science Foundation, Predoctoral Trainee,

University of Notre Dame

National Institutes of Health Postdoctoral Fellow,

University of Massachusetts

Certificate of Appreciation, US Department of Labor

Position: Vice President, Director of Health and Safety

Dr. Hitcho brings a rich professional background to Sevenson Environmental Services, Inc. He has conducted extensive research as a postdoctoral Fellow at the University of Massachusetts and taught at the university level. He was a field industrial hygienist for the Occupational Safety and Health Administration for 3 years, and later served as supervisor of industrial hygiene for the Pittsburgh Area Office. While serving as the head of the Industrial Hygiene Department for the United Steelworkers of America, Dr. Hitcho acted as liaison between the union and the coal carbonization (coking) industry and related chemical industries. He is recognized as a world authority in this field by the International Agency for Research on Cancer (IARC). The IARC monographs developed while he was an active participant are cited by OSHA today in that agency's hazardous communications standard 29 CFR 1910.120. Dr. Hitcho also interfaced with pesticide and herbicide manufacturers to conduct occupational health studies and to develop hazard analyses for some of the processes in this industry. Since 1986, Dr. Hitcho has served as the Director of Occupational Health and Safety for Sevenson. On every project the firm has undertaken since then, he has developed, implemented, reviewed, and evaluated the projectspecific worker health and safety plans, as well as overseeing the medical monitoring of all field employees. Dr. Hitcho supervises a staff of 42 Site Health and Safety Officers. He has overseen the health and safety aspects of all Sevenson's projects.

PROFESSIONAL EXPEREINCE

- Teaching Assistant: University of Notre Dame 1966-1968
- National Science Foundation Trainee: University of Notre Dame 1968 1970
- Post Doctoral Research Fellow: University of Notre Dame 1970 1971
- National Institute of Health Post Doctoral Fellow: University of Massachusetts, Amherst, MA – 1971 – 1974
- Field and Supervisory Industrial Hygienist, OSHA, Pittsburgh Sun Office 1974 1979
- Technician and Assistant Department Head Health and Safety: United Steelworkers of America – 1979 – 1986
- Director of Occupational Health and Safety and Vice President:
 Sevenson Environmental Services, Inc., Niagara Falls, NY: 1986 to Present



organized to improve the practice of industrial hygiene proclaims that

Paul J. Hitcho

having met all requirements through education, experience and examination, is hereby certified in the

COMPREHENSIVE PRACTICE of **INDUSTRIAL HYGIENE**

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

Certificate Number: 2771 CP

Awarded:

June 26, 1984

Expiration Date:

June 1, 2013

Executive Director ABIH

Name: PAUL JUNG – CSP, RRPT

Company: Sevenson Environmental Services, Inc.

Education: A.S. Degree - Radiation Protection Technology

Central Florida Community College

Ocala, Florida

Certifications: BCSP – Certified Safety Professional No. 22748

National Registry of Radiation Protection Technologist – RRPT 15678

Training: 40-hour and 8-hour OSHA Hazardous Waste Site Training

8-hour OSHA Supervisor Hazardous Waste Site Training

40-hour ORISE Course "Implementing the MARSSIM Approach for

Design and Conduct of Radiological Surveys"
10-hour and 30-hour OSHA Construction Outreach Trainer

Position: Corporate Safety Staff

Health Physics, Industrial Hygiene, and Occupational Safety

PROFESSIONAL EXPERIENCE

Mr. Jung, has been a member of Sevenson's corporate safety staff since 2002. His responsibilities vary in health physics, industrial hygiene, and occupational safety. Mr. Jung is Sevenson's Radiation Safety Officer and is responsible for administrating the Radiation Safety Program for radioactive materials licenses issued from the Nuclear Regulatory Commission and State of New York for portable gauges, radioactive materials license issued by the State of Ohio for conducting decontamination and decommissing activities, and for remediation activities performed for the USEPA Superfund, USACE FUSRAP, and other commercial facilities with radioactive materials licenses. Mr. Jung also works in conjunction with the Director of Health and Safety preparing Site Specific Health and Safety Plans and conducting jobsite audits and accident investigations. Mr. Jung conducts training classes for Radiation Worker I and II, USDOT Hazardous Materials job specific and security programs, OSHA 40 and 8 hour HAZWOPER, as well as 10-hour and 30-hour OSHA Construction Safety Outreach courses. Mr. Jung has gained significant experience in health physics, industrial hygiene, and occupation safety while working on a verity of remediation projects overseen by various regulatory agencies as well as program development and oversight on a corporate level.

1995 - Present:

 Sevenson's Corporate Office: Health Physics, Occupational Safety, and Industrial Hygiene.

Prepare Site Specific Health and Safety Plans, conduct activity hazard analysis, provide training, accident investigation, accident investigation review to determine corrective measures, analytical data review, and technical support to field safety personnel.

 Nuclear Regulatory Commission, State of Ohio, and State of New York Radioactive Materials License: Corporate Radiation Safety Officer. Plant property.

 Welsbach General Gas Mantel Superfund Site, Camden County, NJ: Corporate Radiation Safety Officer.

Developed the Radiation Protection Program for the remediation of commercial and residential sites contaminated with thorium tailings from gas mantel operations. Provide project oversight and audits to ensure compliance with radiological project specifications and plans.

 USACE Buffalo District FUSRAP, Rattlesnake Creek FUSRAP Site, Tonawanda, NY: Project Radiation Safety Officer.

Developed the Radiation Control Plan for the excavation of radioactive material at the Rattlesnake Creek FUSRAP Site. Excavation of 5,000 LF of creek bed to dispose of \pm 20,000 cubic yards of sediment and soils contaminated with uranium and thorium. Waste water was treated on site with water treatment plant.

USACE Buffalo District FUSRAP, TNT Investigation at the Lake Ontario
Ordnance Works Waste Water Treatment Plant, Lewiston, NY: Corporate
Radiation Safety Officer/Health and Safety Officer
Developed the Radiation Control Plan for the Investigation of TNT and the Lake
Ontario Ordnance Works Waste Water Treatment Plant Site. Provided radiological
and safety field support for TNT investigation efforts at the Waste Water Treatment

- USACE Buffalo District FUSRAP, Niagara Falls Storage Site, Building 403
 Demolition, Lewiston, NY: Health and Safety Officer/Radiation Safety Officer
 Developed the site Radiation Control Plan. Provided radiological and safety support for the demolition of Building 403.
- North Platte Rail Yard, North Platte, NB: Health and Safety Officer/ Radiation Safety Officer/Project Manager
 Developed Radiation Control Plan and obtained a Radioactive Materials Licenses

from the State of Nebraska to perform work at the North Platte Rail Yard to load balance railcars loaded with Class 7 Radioactive Material.

 WR Grace Project D-III, Chattanooga, TN: Health and Safety Officer/Corporate Radiation Safety Officer

Solidification of radioactive sediment lagoons and soil excavation contaminated with thorium and uranium in excess of 30,000 pCi/g of Th-232. Implemented an extensive radiological safety program with heavy emphasis on air monitoring and contamination control. Performed final verification surveys and reports in accordance with NRC NUREG-5849 and NUREG-1575 (MARSSIM) Level B, C and D protection utilized.

- U.S. Radium Superfund Project, Orange, NJ: Health and Safety Officer Radioactive soil excavation contaminated with radium, uranium and thorium. Level C protection utilized.
- Citgo Refinery, Lake Charles, LA: Health and Safety Officer
 Sampling of a volatile organic compound contaminated lagoon and soil stabilization

pilot project. Level B protection utilized.

- Clevite, Cleveland, OH: Lead Health Physics Technician/Health and Safety Officer
 Decontamination of radioactive material, final verification surveys and final status
 report in accordance with NRC NUREG-5849, and building rehabilitation. Level C
 protection utilized.
- Austin Avenue Superfund Site, Lansdowne, PA: Assistant Health and Safety Officer

Radioactive soil excavation, building characterization, demolition, final status surveys, and new construction. Level C protection utilized.

- Clevite, Cleveland, OH: Health Physics Technician
 Building characterization in accordance with NRC NUREG-5849, and building
 rehabilitation. Level C protection utilized.
- Austin Avenue Superfund Site, Lansdowne, PA: Health Physics Technician Radioactive soil excavation surveys, air sampling, soil sampling, building characterization surveys, final status surveys, and worker monitoring. Level C protection utilized.
- Montclair Superfund Site, Montclair, NJ: Health Physics Technician
 Radioactive soil excavation surveys, air sampling, soil sampling, building
 characterization surveys, final status surveys, and worker monitoring. Level C
 protection utilized.

1993 - 1995:

Prior to working for Sevenson, Mr. Jung was a contracted Health Physics Technician and worked at several Nuclear Power Stations providing refueling outage support. Levels C and B protection utilized.

Board of Certified Safety Professionals Upon the recommendation of the

Board of Certified Safety Professionals, by virtue of the authority vested in it, has conferred on

Paul J Jung

the credential of

Certified Safety Professional

and has granted the title as evidence of meeting the qualifications and passing the required examination so long as this credential is not suspended or revoked and is renewed annually and meets all recertification requirements.





December 14, 2011
DATE ISSUED

22748
CERTIFICATION NUMBER

Danalugan

BOARD RESIDENT SIGNATURE

BOARD SECRETARY SIGNATURE

Atlantic OSHA Training Center An Authorized Region II, Department of Labor, OSHA Education Genter

Certificate of Attendance

Paul J. Jung

has successfully completed the course

OSHA 500: Trainer Course in Occupational Safety and Health Standards in the Construction Industry

April 25-28, 2006



University at Buffalo
Toxicology Research Center
Hayes Annex B, 3435 Main Street
Buffalo, New York 14214
716-829-2125
http://wings.buffalo.edu/trc

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Joseph A. Syracuse, Ph.D. Center Director

The Atlantic OSHA Training Center is a collaboration between the UMDNJ-School of Public Health • University at Buffalo-Toxicology Research Center Universidad Metropolitana INEDA •

Atlantic OSHA Training Center An Authorized Region II, Department of Labor, OSHA Education Center

Certificate of Attendance

Paul J. Jung

has successfully completed the course

OSHA 502: Update for Construction Industry Outreach Trainers

The ABIH has approved this course for 3.01 CM points (CM #09.3380)

June 1-3, 2010

P

University at Buffalo Toxicology Research Center Hayes Annex B, 3435 Main Street Buffalo, New York 14214

716-829-2125 http://wings.buffalg.edu/trc Hen J. Standard

Joseph A. Syracuse, Ph.D. Center Director

The Atlantic OSHA Training Center is a collaboration between the UMDNJ-School of Public Health • University at Buffalo-Toxicology Research Center Universidad Metropolitana INEDA •

Name: Eric Tschud, CHST

Certifications: BCSP – Construction Health and Safety Technician No. C2764

40 Hour OSHA HAZWOPER Training

8 Hour OSHA HAZWOPER Supervisor Training 8 Hour OSHA HAZWOPER Refresher Training 30 Hour OSHA Construction Safety Course USACE Contractors Quality Management Course

USEPA Region IV Oversight Training

First Aid / CPR Certification

Confined Space Entry

Project Assignment: Site Health and Safety Officer

PROFESSIONAL EXPERIENCE

Mr. Tschudi, is a Site Health and Safety Officer with Sevenson Environmental Services, Inc. and has over twenty years of experience in working with hazardous materials. Mr. Tschudi started his career in the commercial nuclear power industry where he was responsible for worker safety while working with or around radiation and has sense become responsible for the safety and health of workers at our sites. Mr. Tschudi is responsible for implementing the site specific health and safety plan; on site training for respirator protection, confined space entries, fall protection program, hazardous communication program, exposure control program; performed real time air monitoring for workers and community. Mr. Tschudi's has gain significant experience in occupational safety and industrial hygiene while being assigned to Superfund projects administered by the USACE. Mr. Tschudi was the SSHO assigned to the Federal Creosote Superfund Site where he was responsible for health and safety for over 560,000 safe man-hours worked over a seven-year period with no lost time accidents.

 Cornell Dubilier Electronics Superfund Site, South Plainfield, NJ: Site Safety and Health Officer.

Excavation and thermal treatment of soils contaminated with PCB, pesticides, polyaromatic hydrocarbons, and metals. The occupational and community air monitoring performed for this project was; real time dust and VOC monitoring, TO-4a (PAH) sampling, NIOSH 7300 (Lead), 7400 (Asbestos) and 5503 (PCB), and OSHA 65 (Benzidine) sampling

- Welsbach General Gas Mantle Superfund Site, Gloucester City, NJ: Site Safety and Health Officer
 - Excavation, staging, and transportation of soils contaminated with thorium and radium.
- Cornell Dubilier Electronics Superfund Site, South Plainfield, NJ: Site Safety

and Health Officer.

Demolition of existing site structures with asbestos and lead contamination and excavation of soils contaminated with PCB, pesticides, polyaromatic hydrocarbons, and metals. The occupational and community air monitoring performed for this project was; real time dust and VOC monitoring, TO-4a (PAH) sampling, NIOSH 7300 (Lead), 7400 (Asbestos) and 5503 (PCB), and OSHA 65 (Benzidine) sampling.

• Federal Creosote Superfund Site, Manville, NJ: Site Safety and Health Officer.

Creosote contaminated soil excavation, disposal, and restoration in a residential and light industrial setting. The occupational and community air monitoring performed for this project was; real time dust and VOC monitoring, EPA PM-10 sampling, TO-13 (VOC) and TO-14 (SVOC) sampling, NIOSH 1501 (PAH) and 5506 (BTEX) sampling.

- Montclair Superfund Site, Montclair, NJ: Site Safety and Health Officer Radioactive soil excavation and building decontamination and rehabilitation in a neighborhood setting. Responsible for implementing the site specific health and safety plan; performed on site training for respiratory protection program, confined space entries, fall protection program, hazardous communication program; performed real time air monitoring as well as NIOSH 0500 sampling; prepared Activity Hazard Analysis; and performed site audits.
- U.S. Radium Superfund Project, Orange, NJ: Health Physics Technician. Radioactive soil excavation and building decontamination and rehabilitation in a residential neighborhood setting. Level C protection worn.
- Montclair Superfund Site, Montclair, NJ: Health Physics Technician. Radioactive soil excavation and building decontamination and rehabilitation in a residential neighborhood setting. Level C protection.

Past Experience:

1993 - 1998 CDM Federal Programs Corporation, Atlanta, GA Environmental Technician

1989 - 1991 NUS Corporation, Tucker, GA Field Technician

1989 - 1993 Bartlett Nuclear, Inc., Plymouth, MA Radiation Technician

Board of Certified Safety Professionals Upon the recommendation of the

Board of Certified Safety Professionals, by virtue of the authority vested in it, has conferred on

Eric Tschudi

the credential of

Construction Health and Safety Technician

and has granted the title as evidence of meeting the qualifications and passing the required examination so long as this credential is not suspended or revoked and is renewed annually and meets all recertification requirements.





February 14, 2012 DATE ISSUED

C2764
CERTIFICATION NUMBER

BOARD PRESIDENT SIGNATURE

BOARD SECRÉTARY SIGNATURE

TRAINING CERTIFICATE

presented to

Eric Tschudi

This document certifies that the above named individual has attended a seminar entitled

OSHA COMPETENT PERSON OSHA EXCAVATION RULE, SUBPART P 29 CFR 1926

Presented by:

Glynn Geotechnical Engineering 415 S. Transit Street Lockport, New York 14094 716.625.6933

GGC

Presented on:

December 18, 2004

INSTRUCTOR

Mark W. Glynn, P.E.



Certificate of Training

This Certifies That

Eric Tschudi

name

has successfully completed the Supervisory 8 hour course in HAZADOUS WASTE OPERATIONS

prepared and conducted by

Sevenson Environmental Services, Inc.

February 11, 2000

date of award

Paul J. Hitcho, Ph.D., CIH
Director of Occupational Health and Safety

S.S.#

Certificate of Completion



This Certifies That

Eric Tschudi

is awarded this certificate for

OSHA 30 Hour Construction Industry Outreach Training Program (Includes 29 CFR 1926 OSHA Standards for Construction!)

Credit Hours: 30

Completion Date: 12/22/2011 11:44 CST

SID: 1498240

Michael Millsap, Trainer C 0034819 and G 0021414

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conducted by
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Sevenson Environmental Services, Inc

Date completed: 07/25/2011
The American Red Cross recognizes
this certificate is valid from
completion date for: 2 Years



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Adult CPR

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completion date for: 2 Years

Americar Red Cross



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has completed the requirements for

AED-Adult

conducted by

Sevenson Environmental Services, Inc



Date completed: 07/25/2011
The American Red Cross recognizes
this certificate is valid from
completion date for: 2 Years

Name: **PERRY D. NOVAK**

Certifications: OSHA 40 Hazardous Waste Site Safety Training

29 CFR 1910.120

8 hour HAZWOPER Supervisor Training

Excavation and Trenching Competent Person Training

Project Assignment: Superintendent

PROFESSIONAL EXPERIENCE

Mr. Novak, a Superintendent with Sevenson Environmental Services, Inc. He has over 17 years experience in general construction. He has worked on many building and residential construction projects. His responsibilities are to implement the construction schedule, working in conjunction with the Project Manager; supervise and oversee field operations. His key projects have included the following:

- Cornell-Dubilier Superfund Site –OU2, South Plainfield, NJ: Superintendent. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations greater than 500 ppm and additional contaminated soils that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration.
- Metaltec/Aerosytems Superfund Site, Franklin, NJ: Superintendent for the construction, startup, and operations and maintenance of a permanent Groundwater Treatment Plant. The GWTP is sized at 150 GPM. Additional work tasks include: construction of a permanent treatment building; installation of an extraction system; treated water discharge system; and in-situ chemical oxidation system.
- Cornell-Dubilier Superfund Site, South Plainfield, NJ: Superintendent for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.
- Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: Superintendent for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging,

and 590 lf of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration.

- Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Superintendent for the excavation, characterization, transportation and disposal of 30,000 cy of creosote contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration.
- Federal Creosote Superfund Site, WAD-2, Claremont, NJ: Superintendent for this task order issued under PRAC on a cost plus fixed fee contract to perform test pit excavation, characterization of soil samples, and odor control studies.
- U.S. Radium Co. Superfund Site (4 Contracts), Orange, NJ: Assistant Superintendent for this CERCLA site requiring the partial demolition, rehabilitation, and restoration (basements, garages, porches, sidewalks, and plantings) at 130 residential properties contaminated from radium. The original processing facility and all appurtances will also be demolished. Material volume for transportation and offsite disposal is estimated at 65,000 cyds.
- Montclair Radium Site (7 Contracts), Montclair, NJ: Assistant Superintendent for the remediation of a residential area contaminated by a former radium-processing facility. Project involved demolition of residences, characterization of materials for offsite disposal, excavation and transport of radium-contaminated soils to a secure disposal facility, and site restoration.



Certificate of Training

This Certifies That

Perry Novak.

has successfully completed the Supervisory 8 hour course in HAZADOUS WASTE OPERATIONS

prepared and conducted by

Sevenson Environmental Services, Inc.

May 12, 2000

date of award

Paul J. Hitcho, Ph.D., CIH
Director of Occupational Health and Safety

S.S.#

TRAINING CERTIFICATE

presented to

Perry Novak

This document certifies that the above named individual has attended a seminar entitled

OSHA COMPETENT PERSON OSHA EXCAVATION RULE, SUBPART P 29 CFR 1926

Presented by:

Glynn Geotechnical Engineering 415 S. Transit Street Lockport, New York 14094 716.625.6933

GGC

Presented on:

December 18, 2004

INSTRUCTOR

Mark W. Glynn, P.E.



Appendix B

Site Specific Safety and Health Plan (SSHP)



Cornell-Dubilier Electronics Superfund Site Operable Unit 01 – Property Remediation South Plainfield, New Jersey

South Plainfield, New Jersey CONTRACT No. W912DQ-10-D-3006 TASK ORDER: 0002

Accident Prevention Plan Appendix B Site Safety and Health Plan

Prepared by: SEVENSON ENVIRONMENTAL SERVICES, INC.

2749 Lockport Road

Niagara Falls, New York 14305

Paul J. Hitcho, PhD, CIH

V.P. Director of Health and Safety

Sevenson Environmental Services, Inc.

Revision No. 2 August 2012



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Acronyms

ACGIH American Conference of Governmental Industrial Hygienists'

AHA Activity Hazard Analysis

AIHA American Industrial Hygiene Association ANSI American National Standards Institute

APP Accident Prevention Plan CBC Complete Blood Count

cc Cubic centimeter

CDC Center for Dieses Control
CFR Code of Federal Regulation
CIH Certified Industrial Hygienist

CO Carbon Monoxide

COR Contracting Officers Representative CPR Cardiopulmonary resuscitation

CQCSM Contractor Quality Control Site Manager

CY Cubic yard dB(a) Decibels A scale

DOT Department of Transportation Manual on Uniform Traffic Control

MUTCD Devices

EM Engineering Manual

EMS Emergency Medical Service

FEV1 Forced Expiratory Volume in 1 second

FVC Forced Vital Capacity

GFCI Ground Fault Circuit Interrupter

HAZWOPER Hazardous Waste Operations and Emergency Response

HEPA High Efficiency Particulate Air

HTRW Hazardous, Toxic and Radioactive Wastes IDLH Immediately Dangerous to Life and Health

KPA Kinetic Phosphorescence Analyzer

LEL Lower Explosive Limit mg/m³ milligram per cubic meter MSDS Material Safety Data Sheets

NIOSH National Institute for Occupational Safety and Health NJDEP New Jersey Department of Environmental Protection OSHA Occupational Safety and Health Administration

O₂ Oxygen gas

PCB Polychlorinated Biphenyls
PEL Permissible Exposure Limit
PID Photo Ionization Detector
PPE Personal Protective Equipment

ppm parts per million

ROPS Roll Over Protective Structure SCBA Self-Contained Breathing Apparatus

SHM Safety and Health Manager

SMAC 24 Blood tests that gives your doctor important information about the

current status of your kidneys, liver, and electrolyte and acid/base

balance as well as of your blood sugar and blood proteins.

SSHO Site Safety and Health Officer TWA Time Weighted Average microgram per cubic meter

USACE United States Army Corps of Engineers

USCG United States Coast Guard

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compounds

1.0 INTRODUCTION

Sevenson Environmental Services, Inc., is under contract to the US Army Corps of Engineers (USACE), Kansas City District Pre-Placed Remedial Contract (PRAC), to perform construction and remedial action at the Cornell Dubilier Electronics Superfund Site located in South Plainfield, New Jersey.

The scope of work will focus on the remediation of PCB impacted soils and associated restoration of the OU-1 properties.

1.1 Plan Objective

The objective of this Site Safety and Health Plan (SSHP) is to supplement the Accident Prevention Plan (APP) by defining the requirements and designating the protocols to be followed during construction activities at the Site. Applicability extends to Sevenson personnel, Sevenson's subcontractors, and visitors inclusive of USACE personnel and representatives, engineers, and subcontractors. Work performed under this contract will comply with applicable Federal, State, and Local Safety and Occupational Health laws and regulations. Through careful planning and implementation of corporate and site-specific safety protocols, Sevenson will strive for zero accidents and incidents on the project.

1.2 Site Safety and Health Plan Revisions

The development and preparation of this SSHP has been based on site-specific information provided to Sevenson. Should any unforeseen hazard become evident during the performance of the work, the SSHO will bring such hazard to the attention of the Contracting Officer Representative (COR) both verbally and in writing for resolution as soon as possible. In the interim, Sevenson will take necessary actions to maintain safe working conditions in order to safeguard on-site personnel, visitors, the public, and the environment. Modifications of any portion or provision of the SSHP will be requested in writing from the Contracting Officer by the SSHO, and authorized in writing. No changes to the SSHP will be allowed until the item has been reviewed and an addendum prepared and approved by Safety and Health Manager.

1.3 Site Information

The remedial action effort will focus on the remediation of the Cornell-Dubilier Electronics Superfund Site, Operable Unit 01 (OU-1), in the Borough of South Plainfield, Middlesex County, New Jersey. OU-1 consists of three residential property clusters (eight properties), that are contaminated with PCB laden soils. Work includes excavation of approximately 2,500 cubic yards (CY) of contaminated soils; transportation of contaminated soil to an offsite facility for disposal; restoration; sampling and analysis of soil for waste characterization, and air; and other activities necessary for complete and proper remediation of the site.

1.4 Chemicals of Concern

Soil samples collected and analyzed for chemical contaminants during the Remedial Investigation showed that polychlorinated biphenyls (PCBs) were the only chemicals of potential concern. The potential exposure during remedial activities from PCB contamination identified at the site is expected to be minimal.

Operational chemicals may be brought to the project-site for use in activities supporting the remedial activities. These chemicals are used for fuels in operating heavy equipment, glues for welding pipes, painting, etc. The use of operational chemicals is regulated by OSHA under the Hazard Communication Standard (29 CFR 1910.1200). Material Safety Data Sheets (MSDSs) for operational chemicals are kept on file in the project office trailer. An inventory list of the anticipated operational chemicals (Hazardous Chemical Inventory List) for use during the project will be maintained at the Site and updated as new material is received. The hazardous chemical inventory will be updated monthly and will be provided to emergency responders as requested.

2.0 ORGANIZATION AND RESPONSIBILITIES

Organization and Responsibilities is located in section 4.0 of the APP.

3.0 HAZARD/RISK ANALYSIS

Controlled hazardous material sites can cause a multitude of health and safety concerns, any of which can result in serious injuries and/or illnesses of workers. Some hazards are a function of the physical, biological, or chemical nature of the site itself. Others are a direct result of the construction being done. Based upon the information provided to Sevenson regarding the primary historical uses of the property and the knowledge of the current conditions, the overall Safety and Health hazard assigned to the contemplated activities at the Site is determined to be moderate.

Sevenson has developed an Activity Hazard Analysis (AHA) for major phases of work of the remedial action. A major phase of work is defined as an operation involving a type of activity presenting hazards not experienced in previous operations, or where a new subcontractor or work crew is to perform the specified phase. The analysis will define the activity being performed and identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard. An AHA will also be prepared when new tasks are added, job situations change, or when it becomes necessary to alter safety requirements. Work will not proceed on a particular task/work area until the AHA has been reviewed and a preparatory meeting has been conducted. General hazards associated with remedial activities are described below.

A preparatory meeting will be conducted by the SSHO for site personnel prior to their initiating any new or differing site activities. At the preparatory meeting, the SSHO will ensure that site personnel are knowledgeable of the hazards and controls of the activity to be performed.

AHAs have been prepared for the major features of work to be completed and are located in Appendix E of the APP.

4.0 SAFETY AND HEALTH TRAINING

Consistent with OSHA's 29 CFR 1926.65 regulation covering Hazardous Waste Operations and Emergency Response, all Site personnel who will be performing remedial activities, intrusive sampling, emergency response operations, or come in contact with contaminated material are required to be trained in accordance with the standard.

4.1 General Hazardous Waste Operation Training

Prior to arrival on-site, Sevenson will be responsible for certifying that the employees meet the requirements of pre-assignment training, consistent with OSHA 29 CFR 1910.120 paragraph (e)(3).

Sevenson will provide documentation certifying that each general Site worker has received a minimum of 40 hours of instruction off site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor. All personnel must also receive 8 hours of refresher training annually. At no time should anyone be working on-site without the minimum training requirements. Consistent with OSHA 29 CFR 1910.120 paragraph (e)(4), individuals designated as Site Supervisors require an additional 8 hours of training. A certificate of Worker/Visitor Acknowledgement will be completed and submitted for each site worker and visitor who will enter the contamination reduction zone, and/or exclusion zone.

4.2 Preparatory Meetings

Preparatory meetings will be conducted by the SSHO for site personnel prior to their initiating any new or differing site activities. At the Preparatory meetings, the SSHO will ensure that site personnel are knowledgeable of the SSHP and understand the hazards and controls of the activity to be performed (review Activity Hazard Analysis). Activity Hazard Analysis shall be submitted at least 15 days prior to the Preparatory Meeting to the COR.

4.3 Site-Specific Training

All personnel working at the Site during remedial activities will review this SSHP with the SSHO. Personnel will sign an acknowledgment form to document their review and agreement to comply with the provisions of the SSHP. All visitors must sign the visitor's log and wait in the Sevenson field office for a briefing before entering the Site.

The SSHO will be responsible for ensuring Site visitors are trained in the hazard associated with the Site, to explain emergency procedures, and instruct them in the use of protective gear required during the visit. Visitors meeting requirements of HAZWOPER may be allowed in the Exclusion Zone if conditions permit and if escorted by the SSHO.

4.3.1 Initial Session

Prior to commencement of onsite field activities, all site employees will attend a site-specific safety and health training session. This session will be conducted by the SSHO or designee, to ensure that personnel are familiar with the requirements of this Site-Specific Safety and Health Plan. The initial session will consist of the contents of this SSHP and specific procedures developed for the project. Initial session training shall be documented by an attendance sign in sheet. The SSHO or designee will also provide initial site-specific training for replacement employees.

As a minimum the site-specific training will include:

- Explanation of the APP and its associated appendices.
- Health and Safety Personnel and Organization.
- Special attention to signs and symptoms of overexposure to known and suspected site contaminants.
- Health effects of site contaminants.
- Air monitoring description.

- Physical hazards associated with the project.
- Selection, use, and limitations of available safety equipment and proper procedures for its use.
- Personal hygiene and decontamination.
- Respirator fit testing as required by site conditions and activities.
- Site rules and regulations.
- Work zone establishment and markings.
- Site communication and the "Buddy System".
- Emergency preparedness procedures.
- Equipment decontamination.
- Medical monitoring procedures.
- Review applicable Sevenson Standard Operating Procedures.
- Site Specific Hazard Communication.

4.3.2 Periodic Sessions

Periodic training will be provided at least weekly and prior to each change of operation. The training will address safety and health procedures, work practices, any changes to SSHP, review activity hazard analysis, work task or schedule, results of previous week's air monitoring, and review of safety discrepancies and accidents. Attendance of periodic sessions shall be documented by attendance sign in sheets.

4.4 Training for Hazardous Materials Shipments

Training for hazardous materials shipments will be provided to site personnel in accordance with 49 CFR 172 Subpart H. This training will be task specific for any employee who handles, prepares, offers, or accepts hazardous materials. This training is required initially and every 3 years after that, unless there are changes in rules, regulations, manifests, or procedures. Training for hazardous materials shipment shall be documented as described in 49 CFR 172 Subpart H (attendance sheet and certificate).

4.5 Safety Meetings

A well-ordered flow of information is essential to a good safety program. Sevenson, through a program of safety meetings at all levels, intends to accomplish the goals of safety awareness, education, and participation.

The SSHO will conduct daily safety meetings with ALL on-site personnel. An opportunity will be provided for employees to voice safety-related concerns. The SSHO will submit a synopsis of each meeting including topics covered, safety-related concerns, action items to be addressed, status of previous items, and a signed attendance list.

4.6 Hazard Communication Training

OSHA's standard for hazard communication requires that all workers be informed of potentially hazardous materials used in their work area. Sevenson provides employees with information and training on hazardous chemicals at their work site at the time of their initial assignment, annually, and whenever a new chemical is introduced into their work site that could present a potential hazard. Personnel are briefed on the general requirements of the OSHA hazard communication standard and duty-specific hazards by their immediate supervisor before they begin any duties on the work site. Personnel transferred from another site are also briefed on the duty-specific hazards by their immediate supervisor before they begin any duties on the work site. Hazard Communication Training shall be documented on an attendance sheet.

4.7 Excavation/Trenching Competent Person

Supervisory and other essential personnel engaged in excavation activities are required to complete Competent Person Training. This training provides knowledge about soil analysis and classification, use of protective systems, and the requirements of Excavation Standards. The Superintendent is designated Excavation/Trenching Competent Persons for this project. A copy of his training certificate is located in Appendix A of the APP. Excavation/trenching competent person training shall be documented in the form of a certificate signed by the trainer.

4.8 First Aid/CPR Training

At least two site personnel will be required to complete first aid and cardiopulmonary resuscitation (CPR) training and receive the appropriate certification. CPR certification is either renewed annually of bi-annually depending on the training course; first aid certification is renewed every three years. All first aid/CPR training is American Red Cross, American Heart Association, or National Safety Council approved. Additionally, First Aid/CPR qualified personnel will have received blood borne pathogen training as required by 29 CFR 1910.1030. A list of trained personnel for first aid and CPR will be posted on the job site safety bulletin board as well as all office areas equipped with a first aid station. First aid and CPR training shall be documented on a wallet size card or wall certificate issued by the trainer.

5.0 PERSONAL PROTECTION EQUIPMENT

This section provides an outline of the PPE and guidelines that will be implemented to minimize chemical, physical, and biological exposures and accidents during remedial activities. Where engineering controls and job hazard analyses do not eliminate all job hazards, employees will (where appropriate) wear PPE.

These include items such as, hard hats, face shields, safety goggles, glasses, hearing protection, foot guards, gloves, reflective vests, etc. The SSHO will ensure that equipment selected will meet the following requirements:

- It will be appropriate for the particular hazard.
- It will be maintained in good condition.
- It will be properly stored when not in use to prevent damage or loss.
- It will be kept clean, fully functional, and sanitary.
- Must meet all applicable American National Standards Institute (ANSI) standards.

Personal clothing and jewelry can present additional safety hazards. Supervisors will ensure that workers wear appropriate clothing, which will not interfere with the PPE. All PPE will be selected in accordance with 29 CFR 1910.132. Sevenson will provide proper PPE to all employees. All protective clothing will be properly used, stored, selected, and maintained.

Government personnel will be supplied with all required personal protective equipment (excluding airpurifying negative-pressure respirators and safety shoes, which will be provided by the individual visitors). Sevenson will provide basic training in the use and limitations of PPE to government personnel.

5.1 PPE Hazard Assessment

Selection of the appropriate PPE is a complex process, which should take into consideration a variety of factors. Key factors involved in this process are identification of the hazards, or suspected hazards, routes of potential exposure to employees (inhalation, skin absorption, ingestion, and eye or skin contact), and the performance of the PPE materials (and clothing seams) in providing a barrier to these hazards. The amount of protection provided by PPE is material-hazard specific. That is, protective equipment materials will protect well against some hazardous substances and poorly, or not at all, against others. In many instances, protective equipment materials cannot be found that will provide continuous protection from the particular hazardous substance. In these cases, the breakthrough time of the protective material should exceed the work duration.

Other factors in this selection process to be considered are matching the PPE to the employee's work requirements and task-specific conditions. The durability of PPE materials, such as tear strength and seam strength, should be considered in relation to the employee's tasks. The effects of PPE in relation to heat stress and task duration are a factor in selecting and using PPE. In some cases, layers of PPE may be necessary to provide sufficient protection, or to protect expensive PPE inner garments, suits, or equipment.

The following are guidelines, which Sevenson uses to select PPE. Based on the site characterization and analysis performed during the remedial activities, a combination of PPE has been selected from the different protection levels (i.e., A, B, C, D Modified, or D) as being suitable to the hazards of the work to be performed. Section 3.0 of this plan characterizes and analyzes the chemical, physical, and biological hazards; specific tasks/operations; routes of exposure; and concentrations of contaminants. Characteristics, capabilities, and limitations are summarized in this section.

- Level A: The highest level of skin, eye, and respiratory protection (Level A PPE is not anticipated on this project).
- Level B: Should be worn when the highest level of respiratory protection is needed, but a lower level of skin protection is needed, compared to that of level A.
- Level C: Should be worn when the criteria for using air-purifying respirators are met, and a lesser or the same level of skin protection is needed, compared to that of level B.
- Level D Modified: Should be worn when respiratory protection is not warranted but minimal dermal protection is necessary.
- Level D: Level D provides minimal protection against chemical hazards. A work uniform consisting of coveralls and/or long pants and sleeves may be worn in any area without the potential for significant respiratory or skin contact hazards.

Personal Protective Equipment alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound work practices.

5.1.1 Head Protection

All personnel will wear a hard hat that meets the requirements and specifications in ANSI Safety Requirements for Industrial Head Protection Z89.1. Exceptions to this requirement are personnel in the site office and rest and eating areas.

5.1.2 Hand Protection

Outer gloves used on the Site for remedial activities will be either chemical resistant or general purpose. The appropriate glove will be determined by the SSHO for a specific work task. Chemical resistant gloves will be selected using appropriate chemical degradation guides. Leather work gloves will be worn when work activities require the handling of sharp and rough-surfaced objects.

Welder's gloves or any other special type of gloves are considered outer gloves and are to be worn over inner gloves. These special outer gloves will be stored on-site and will be disposed of properly as PPE waste. Inner gloves will always be chemical resistant, will be selected using appropriate chemical degradation guides and will be disposed of as PPE waste.

5.1.3 Eye/Face Protection

Contact lenses are allowed in the Exclusion Zone and Contamination Reduction Zone unless otherwise determined by the SSHO that a chemical MSDS prevents their use. Eye/face protection will be worn by all personnel in the Contamination Reduction Zone and Exclusion Zone. Double eye protection will be required when power-washing equipment during decontamination. All eye/face protection provided will be ANSI Z87 approved.

5.1.4 Footwear

Footwear will be steel-toed safety boots/composite and will be worn for all field activities. Chemical-resistant outer boot covers are to be worn in the Exclusion Zone, Contamination Reduction Zone. Boot racks will be provided in the Contaminated Reduction Zone for drying of outer boots.

5.1.5 Respiratory Protection

To control and or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective of this program will be to prevent atmospheric contamination. This will be accomplished as far as feasible by accepted engineering control measures (for example, dust suppression). When effective engineering controls are not feasible, or while they are being instituted, appropriate respiratory protection will be used. A respiratory protection program will be implemented that is compliant to the requirements of 29 CFR 1910.134, "Respiratory Protection." Respiratory protection equipment will be NIOSH-approved, and respirator use will conform to ANSI Z88.2.

Respirators will be provided when such equipment is necessary to protect the health of the employee. Sevenson will:

- Provide the respirators, which are applicable and suitable for the purpose intended.
- Be responsible for maintaining a written Respiratory Protective Program in accordance with 29 CFR 1910.134. The employee will use the provided respiratory protection in accordance with instructions and training received.
- Respirators will be selected on the basis of hazards to which the worker is exposed.

- The user will be instructed and trained in the proper use of respirators and their limitations.
- Respirators will be regularly cleaned and disinfected.
- Respirators will be stored in a convenient, clean, and sanitary location.
- Respirators used routinely will be inspected during cleaning. Worn or deteriorated parts will be replaced. Respirators for emergency use, such as self-contained devices, will be thoroughly inspected at least once a month and after each use.
- Appropriate surveillance of work area conditions and degree of employee exposure or stress will be maintained.
- There will be regular inspections and evaluations to determine the continued effectiveness of the program.
- Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A physician will determine whether an individual is physically fit to wear a respirator. The physician's clearance allows the worker to don a respirator and work in conditions of high ambient temperatures. Heat stress will be closely monitored by the SSHO.

Each respirator will be individually assigned and not interchanged between workers without cleaning and sanitizing. The cartridges/filters will be changed at the first sign of breakthrough based on contaminant warning properties or if the user experiences excessive breathing resistance. The SSHO will make final determination of the frequency of respirator cartridge/filter change-out. Respirators will be cleaned and stored in an uncontaminated atmosphere after each use. Used cartridges will be disposed of with spent PPE. Self-contained breathing apparatus/supplied-air respirators will be inspected before and after use by the user and at least once monthly by the SSHO.

All employees working at the Site during remedial activities who have the potential of wearing a respirator will be fit-tested to ensure they utilize the proper size respirator. Sevenson will arrange for fit testing. The fit test is conducted according to the manufacturer's suggestions and will be quantitative. A quantitative fit test machine will be used to perform the test. A fit factor of 500 must be obtained by the wearer in order to have successfully pass the fit test As per OSHA regulations, personnel that are unable to pass a fit test will not enter a work area when respiratory protection is required. In addition, facial hair is prohibited from the respirator seal area. Any person with facial hair will not be permitted to enter a work area where respiratory protection is required, regardless of the fit test results. Documentation of the fit testing will be maintained on-site.

5.2 Levels of Protection

The level of protection must correspond to the level of hazards known or suspected for the specific work activity.

5.2.1 Level A

Level A equipment, used as appropriate, is as follows:

- Positive pressure, full face piece, self-contained breathing apparatus (SCBA) or positive pressure supplied air respirator with escape SCBA (NIOSH-approved)
- Fully encapsulating suit (Tychem, butyl rubber)
- Outer gloves: neoprene or nitrile
- Inner gloves: latex or nitrile
- Chemical resistant or disposable over boots.
- Steel-toed safety boots
- Hard hat

5.2.2 Level B

Level B equipment, used as appropriate, is as follows:

- Positive pressure, full face piece, self-contained breathing apparatus (SCBA) or positive pressure supplied air respirator with escape SCBA (NIOSH-approved)
- Disposable coverall (Tyvek, Polycoated Tyvek or Saranex)
- Outer gloves: neoprene or nitrile
- Inner gloves: latex or nitrile
- Chemical resistant or disposable over boots.
- Steel-toed safety boots
- Hard hat

5.2.3 Level C

Level C equipment, used as appropriate, is as follows:

- Full-face, air purifying, cartridge-equipped respirators (NIOSH-approved) utilizing P-100 (HEPA) filters (half-face if approved by SSHO). Cartridges and/or filters must be replaced as needed and, as a minimum, changed weekly
- Disposable coverall (Tyvek or Polycoated Tyvek)
- Outer gloves: leather, cotton, neoprene or nitrile
- Inner gloves: latex or nitrile
- Chemical resistant or disposable over boots
- Steel-toed safety boots
- Hard hat
- Safety glasses (if half-mask is utilized)
- Splash guards (worn during high pressure washing activities)

5.2.4 Modified Level D

Modified Level D equipment, used as appropriate, is as follows:

- Disposable coveralls Tyvek or Polycoated or equivalent for wet work (equipment decontamination) or as required
- Outer gloves leather, cotton, nitrile as required
- Inner gloves nitrile surgical with cotton liner (cotton liner optional)
- Boot covers Tyvek or equivalent
- Outer boots rubber or latex disposable
- Safety boots
- Hard hat
- Reflective vests
- Safety glasses with face shield as required
 - 1. SSHO shall determine the need for upgrade or downgrade of PPE levels based on a conservative interpretation of information provided by air monitoring data and other appropriate information.
 - 2. The SSHO's Daily Safety and Inspection log will list protective ensemble(s) in use for each task.

5.2.5 Level D

Level D equipment, used as appropriate, is as follows:

- Work uniform (Long pants and Shirt)
- Reflective vests
- Hard hat
- Steel-toed safety boots (with disposable over boots, as required)
- Safety glasses
- Leather or heavy cloth gloves (as needed)

Air monitoring using direct-reading instruments and personal air sampling will be performed to determine if an upgrade or downgrade from initial PPE levels is warranted. All decisions on the level of protection will be based upon a conservative interpretation by the SSHO of the information provided by air monitoring results, environmental results, and other appropriate information.

6.0 MEDICAL SURVEILLANCE PROGRAM

The Medical Surveillance Program is designed to track the physical condition of employees on a regular basis as well as survey pre-employment or baseline conditions prior to potential exposures. The Medical Surveillance Program is a part of the overall Sevenson Safety and Health program.

6.1 Baseline Medical Monitoring

Each employee must receive a baseline physical, which can be part of an annual medical monitoring program, prior to being permitted to enter the Exclusion Zone or Contamination Reduction Zone. The content of the physical has been determined by Sevenson's Occupational Physician as suggested by NIOSH/OSHA/USCG/EPA's Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities. The minimum medical monitoring requirements for work at the Site are as follows:

- Complete medical and work histories
- Physical examination
- Pulmonary function tests (FVC and FEV1)
- Blood chemistry (CBC & SMAC 24)
- Urinalysis with microscopic examination
- Audiometric Testing
- Eye examination and visual acuity
- Chest X-Ray (as directed by the Occupational Physician)
- Electrocardiogram (as directed by the Occupational Physician)
- Other Biological testing as prescribed by the Occupational Physician

The medical surveillance provided to the employee includes a judgment by the medical examiner of the ability of the employee to use either positive- or negative-pressure respiratory protection

equipment. Any individual found to have a medical condition, which could directly or indirectly be aggravated by exposure to these site contaminants, will not be employed for the project. Individuals not capable of satisfying the project requirements for wearing respiratory protection equipment will be evaluated on a case-by-case basis prior to being employed. A copy of the medical examination is provided to the employee.

The employee will be informed of any medical condition(s) that would result in work restriction or that would prevent him from working at hazardous waste sites.

6.2 Periodic Monitoring

In addition to a baseline physical, all employees require a physical every 12 months unless the advising physician believes a shorter interval is appropriate. The Occupational Physician has prescribed an adequate medical evaluation, which fulfills OSHA 29 CFR 1926.65 requirements. The pre-assignment medical outlined above is applicable.

All personnel working on the Site that enter an active Exclusion or Contamination Reduction Zone will verify currency (within 12 months) with respect to medical monitoring. Sevenson will obtain a copy of the physician's written opinion detailing the employee's ability to perform hazardous waste site work.

At termination of employment or reassignment to an activity or location that does not represent a risk of exposure to hazardous substances, an employee may be required to take an exit physical. If his/her last physical was within the last six months, the advising medical consultant has the right to determine adequacy and necessity of an exit exam.

6.3 Exposure/Injury/Medical Support

As a follow-up to an injury or possible exposure above established exposure limits, all employees are entitled to and encouraged to seek medical attention and physical testing. Depending upon the type of exposure, it is critical to perform follow-up testing within 24-48 hours. It will be up to the occupational health physician to advise the type of test required to accurately monitor for exposure effects. (Exposures to hazardous materials will be from chemicals or products brought onto the site to support the project)

Any employee, who develops a loss time illness exceeding one working day, or injury during the period of the contract, must be evaluated by the occupational health physician. A written statement indicating the employee's fitness, signed by the occupational physician must be submitted prior to the employee entering the work site.

6.4 Medical Records

The results of medical testing and full medical records will be maintained in accordance with 29 CFR Part 1910.1020. A copy of the medical certification will be kept on the Site for each person entering the Contamination Reduction Zone and Exclusion Zone.

7.0 EXPOSURE MONITORING/AIR SAMPLING PROGRAM

This air-monitoring plan will serve to outline procedures to identify and quantify airborne PCBs at the Site. Both real-time monitoring and air sampling will be conducted throughout the duration of the project to establish the levels of personal protection required, as well as to verify that worker exposure

levels and respiratory protection are adequate. Additional monitoring will be performed for the protection of the public and the environment. Available site information indicates that the primary concerns with respect to contamination at the site are related to inhalation of particulates. As a result, engineering controls will be utilized to the maximum extent possible to control the production of dusts during the project. Engineering controls may include the use of tarps or coverings, water misting or dust control additives.

7.1 Real-Time Air Monitoring

The SSHO shall utilize a master equipment list to track air monitoring equipment.

7.1.1 Organic Vapor Monitoring

During the remedial activities, organic vapor levels will be monitored initially and every 30 minutes during intrusive activities with a Photo Ionization Detector (PID) set at the appropriate span setting and equipped with a 10.6 eV probe or equivalent device (a copy of the PID Operating Manual will be kept on-site). The frequency may increase or decrease based on site conditions. Air monitoring will be performed at all active work areas during excavation activities and within 10 feet downwind. Real-time air monitoring equipment calibration will be performed in accordance with the manufacturer's recommendation prior to field use. Calibration information will be recorded on the Daily Air Monitoring Report. Maintenance and calibration procedures for all air monitoring devices will be maintained on site.

7.1.2 Combustible Gases/Carbon Monoxide/Oxygen Levels/Hydrogen Sulfide

A Multi-RAE or equivalent Portable Gas Monitor will be utilized to monitor for explosive, oxygen enriched/deficient atmospheres and concentrations of hydrogen sulfide initially and every 30 minutes during intrusive operations at all active work areas during excavation activities and within 10 feet downwind. Continuous air monitoring will be performed during utility connection or disconnection activities. A copy of the Operating Manual will be kept on-site. The Portable Gas Monitor will be utilized for all intrusive activities and activities where the potential for disruption of utilities exists. Calibration information will be recorded on the Daily Air Monitoring Report. Maintenance and calibration procedures for all air monitoring devices will be maintained on site.

7.1.3 Particulate Monitoring

Continuous real-time air monitoring will be performed to address airborne particulate generated during demolition, excavation, and material handling activities. Air monitoring will be performed at the work area using a TSI Model 8520 Dust Trak or equivalent particulate monitor.

Real-time air monitoring equipment calibration will be performed in accordance with the manufacturer's recommendation prior to field use. Calibration information will be recorded on the Daily Air Monitoring Report. Maintenance and calibration procedures for all air monitoring devices will be maintained on site.

7.2 Personal Air Sampling

In addition to the real-time monitoring performed during demolition, excavation and material handling activities, the personal air-monitoring program will provide for the determination of worker's airborne exposure levels to PCBs. Such a determination will be made from laboratory analysis of air samples collected from workers during an 8-hour work shift. The selection of the worker to be monitored for daily exposure will be done by the SSHO based on her professional judgment of the characteristics of

the job and locations in each work area. Personal sampling will be conducted in a manner representative of exposure of workers at those locations or jobs where the potential for maximum exposure is predicted. Personal air monitoring results will be used to verify personnel exposure during the remedial project. Refer to *Table 1 – "Proposed Site Air Monitoring"*

Table 1 Proposed Site Air Sampling									
Contaminant	Task/Activity	Type of Sample	Sampling Method	Analysis Method					
Respirable Dust	Excavation and contaminated material handling	General Area	Real Time	Real time					
PCBs	Excavation and contaminated material handling	Breathing Zone	Personal Low-Volume	NIOSH 5503					

7.3 Perimeter Air Monitoring

Perimeter air monitoring will be performed daily to ensure that remedial activities do not result in excessive airborne particulate emissions from the site. Both real-time particulate monitoring and air samples will be collected and analyzed to determine the concentrations of particulate and radioactivity at the perimeter of the remediation areas.

Respirable dust air sampling will be performed using the TSI Model 8520 Dust Traks or equivalent, capable of real-time monitoring and data logging. The 8520 system will monitor the mass concentration of ambient airborne particulates in real time.

In addition to real time sampling, one high volume PUF Sample for PCBs will be collected at each property cluster during remediation. These samples will be collected at a frequency of once per month unless directed otherwise by the COR.

7.4 Operational Action Levels

A decision-making protocol for an upgrade in levels of protection and/or withdrawal of personnel from an area based on atmospheric hazards is outlined in *Table 2 – "Operational Action Levels"*.

Table 2 Operational Action Levels									
Type of Measurement	Concentration/Activity/ Dose rate	Action							
Respirable Particulate – Work Area	Less than 5 mg/m ³	Continue work with air monitoring.							
	Greater than 5 mg/m ³	Stop work, upgrade to Level C PPE, Initiate dust control measures.							
Total Organic Vapor- Work Area	Less than 25 ppm	Continue work with air monitoring							
	25 ppm – 250 ppm	Obtain second sample within 5 – 15 minute period; if the second sample exceeds 25 ppm, upgrade to Level C with OVA cartridge. Report findings to COR and CIH. Obtain third sample within 5-15 minutes, then every 15 minutes after the third reading until VOC levels are less than 25 ppm. As early as possible in the sampling routine, characterize using chemical specific detector tubes.							
	Greater than 250 ppm	Active work shall be shut down and personnel evacuated upwind. Notify the COR and CIH.							
PCBs -Work Area	Greater than 0.5 mg/m ³	Don air purifying respiratory equipment							
	Greater than 25 mg/m ³	Stop work, identify source of airborne contamination, notify the HSM and COR.							
Total Particulate - Perimeter	Less than 150 μg/m ³	Continue work with air monitoring.							
	Greater than 150 μg/m ³	Initiate dust control measures.							

7.5 Noise

Noise is generated during remedial activities in such operations as transportation of materials and operation of heavy construction equipment. Noise has been defined as unwanted sounds. The human ear can tolerate a certain amount of sound without any harmful effects. Personnel will be provided protection against the effects of hazardous noise exposure whenever sound-pressure levels exceed 83 dB(A) steady-state expressed as a time-weighted average (TWA) or 140 dB(A) impulse noise.

The USACE standard allows 85 dB(A) for a full 8 hours and for a lesser time when the levels exceed 90 dB(A). It is usually safe to assume that if you need to shout to be heard at arm's length, the noise level is at 85 dB(A) or above. Based on the nature of activities to be performed on site, the use of heavy equipment, power tools, and other noise producing devices, Sevenson personnel are enrolled in a Hearing Conservation Program that meets the requirements of OSHA regulation 29 CFR 1910.95 as part of our Medical Surveillance Program.

Based upon Sevenson's past experience, it is known that the noise levels emanating from the operation of the heavy equipment often exceed what is allowable for worker exposure. Consequently, equipment operators and personnel working near the equipment are required to wear hearing protection. However, Sevenson will perform measurement with noise dosimetry to verify the effectiveness of the Hearing Conservation Program. Sevenson will provide hearing protection equipment to all Site personnel as needed.

In addition to worker protection various noise interventions may be employed at the Site to control noise exposure to the public. The interventions may include, but are not limited to exhaust mufflers, whisper packs, protective shrouds, and fence line noise barriers. The specific methodologies will be evaluated during the startup phase of Site work. The SSHO and Superintendent will be responsible to ensure these engineering controls are in place and properly maintained throughout the duration of the project.

8.0 HEAT AND COLD STRESS

8.1 Heat Stress

Heat stress may be a hazard for workers wearing protective clothing even if the temperature is moderate. The same protective materials that shield the body from chemical exposure prevent heat and moisture from dissipating. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient temperature and the work being performed, heat stress can occur very rapidly - within as little as 15 minutes.

In its early stages, heat stress can cause discomfort and inattention, resulting in impaired functional abilities that can threaten the safety of both the individual and his co-workers. Personnel will be instructed to recognize the symptoms of the onset of heat stress. The SSHO may periodically check all personnel working in thermal stress areas to ensure that the symptoms are recognized. Frequency of heat stress monitoring and checks for symptoms of heat stress will increase with rises in air temperature, humidity, and the degree of exposure to high temperature areas.

When workers are in Level C PPE or higher, an ambient temperature of 72.5° F will be used as an action level to implement pulse monitoring, oral temperatures, and administrative controls, including rest breaks and work rotation to prevent employees from experiencing heat-related health effects including weight loss. The guidance for workers wearing permeable clothing is specified in the current version of the ACGIH Threshold Limit Values for Heat Stress. If actual clothing differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, changes should be made to the monitoring requirements and work rest period to account for these differences. *Table 3* – "*Frequency of Physiological Monitoring*" provides the suggested frequency of physiological monitoring for fit and acclimatized workers.

Table 3 Frequency of Physiological Monitoring									
Adjusted Temperature Calculation	Normal Work Clothing	Impermeable Clothing							
90 °F (32.2 °C) or above	After each 45 minutes of work	After each 15 minutes of work							
87.5 - 90.0 °F (30.8 – 32.2 °C)	After each 60 minutes of work	After each 30 minutes of work							
82.5 - 87.5 °F (28.1 – 30.8 °C)	After each 90 minutes of work	After each 60 minutes of work							
77.5 - 82.5 °F (25.3 - 28.1 °C)	After each 120 minutes of work	After each 90 minutes of work							
72.5 - 77.5 °F (22.5 - 25.3 °C)	After each 150 minutes of work	After each 120 minutes of work							

The following parameters should be used when monitoring workers:

Heart rate - Count the radial pulse as early as possible in the rest period to ensure a more accurate reading. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period at the same length. If, at the end of the following work period, the heart rate still exceeds 110 beats per minute, shorten the work period again by one-third.

Oral Temperature - The utilization of oral temperature applies to the time immediately after the worker leaves the contamination reduction zone. Using a clinical thermometer, take the temperature for three minutes. If the oral temperature exceeds 99.6 °F (37.6 °C), shorten the next work cycle by one-third, without a change to the rest period. If the oral temperature still exceeds 99.6 °F (37.6 °C) at the end of the following work period, shorten the next work cycle by one-third. Do not permit a worker to perform duties requiring a semi permeable or impermeable garment if the oral temperature exceeds 100.4 °F (38.1 °C). Ear canal readings are a valid method to monitor the temperature of workers who remain in the contamination reduction zone.

The oral temperature shall not exceed 100.4 °F. If an employee's pulse rate exceeds the maximum age-adjusted heart rate (0.7(220-AGE)), and/or the oral temperature exceeds 100.4 °F, the employee shall be required to stop work and rest at the work site or move to an air-conditioned room after proper decontamination. The affected employee may be allowed to return to work after his/her pulse rate has dropped below 100 beats per minute. The SSHO in consultation with the affected employee, and medical personnel if necessary, shall determine whether an employee is ready to return to work. Fluids shall be provided and rest breaks will be taken. The frequency of breaks will increase with the temperature. Such things as cooling vests, portable fans, and breaks in air-conditioned areas shall be used if necessary.

When practicable, the most labor-intensive tasks should be carried out during the coolest part of the day. If necessary, a work/rest regimen will be instituted. The work/rest regimen consists of alternating periods of work and rest. The duration of these alternating periods will depend on the environmental conditions at the job site, such as, the Wet Bulb Globe Temperature, duration, and type of activities performed.

A worker who becomes irrational or confused, or collapses on the job should be considered a heat stroke victim and medical help should be called immediately. Early recognition of symptoms and prompt emergency treatment is the key to aiding someone with heat stroke. While awaiting the ambulance, begin efforts to cool the victim down by performing the following:

- Move the victim to a cooler environment and remove outer clothing.
- Wet the skin with water, and fan vigorously or repeatedly apply cold packs or immerse the victim in a tub of cool (not ice) water.
- If no water is available, fanning will help promote cooling.

Any individual showing susceptibility to heat stress will be referred to a physician for evaluation. In addition, the use of prescription drugs can also contribute to the effects of heat stress and will be considered during the assignment of work. Cool (50°-60°F) water or a sport drink, such as Gatorade, will be made available to workers and encourage them to drink small amounts frequently, (e.g., one cup every 20 minutes). Ample supplies of liquids will be placed close to the work area.

8.2 Cold Stress

Cold injury (frostbite and hypothermia) and impaired ability to work are hazards to persons working outdoors in low temperatures at or below freezing. Extreme cold for a short time may cause severe injury to exposed body surfaces (frost nip or frostbite), or result in profound generalized cooling (hypothermia). Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ears, are the most susceptible to frost nip or frostbite.

Two factors influence the development of a cold weather injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked. The wind chill factor is the cooling effect of any combination of temperature and wind velocity or air movement. *Table 4 – Wind Chill Index* should be consulted when planning for exposure to low temperatures and wind. The wind chill index does not take into account the specific part of the body exposed to cold; the level of activity, which affects body heat production; or the amount of clothing being worn.

When practicable, the most sedentary tasks should be carried out during the warmest part of the day. If necessary, a light-work rotation schedule should be instituted or the work area heated. Heavy work that will cause heavy sweating resulting in wet clothing must also be monitored. The work/rest regimen consists of alternating periods of work and rest. The duration of these alternating periods will depend on the environmental conditions at the job site, (i.e., the Wind Chill Temperature, duration, and type of activities performed).

When air temperatures are 36 °F or less, workers who become immersed in water or whose clothing becomes considerably wet shall immediately change into dry clothing/blankets and be treated for hypothermia. Blankets will be included as part of the first aid equipment for activities where workers can become immersed in water or considerably wet. Workers will be required to have a set of dry spare change of clothing available at the Site.

If a worker expresses a concern about their ability to work in a cold environment, they are required to provide medical documentation on their ability to work in temperatures at 30 °F or below. If medical documentation shows they are suffering from diseases or taking medication that interferes with normal body temperature regulation or reduces tolerance to work in cold environments, they will be excluded from cold weather tasks.

Table 4 Wind Chill Index													
Wind Actual Temperature (°F)													
(mph)	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
	Equivalent Temperature (°F)												
5	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40
10	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47
15	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51
20	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55
25	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58
30	22	16	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60
35	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62
40	20	13	6	-1	-8	-15	-22	-29	-36	-42	-50	-57	-64
T = Air Ter	Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V0.16) + 0.4275T(V0.16) T = Air Temperature (°F) V = Wind Speed (mph)						1	Frostbit	e occur	rs in 45	minute	s or les	s

Table 5 - Maximum Daily Time Limits for Exposure at Low Temperatures gives the recommended time limits for working in various low temperature ranges.

Table 5 Maximum Daily Time Limits for Exposure at Low Temperatures								
Temperature Range (°F)	Maximum Daily Exposure							
30 to 0	No limit, providing that the person is properly clothed.							
0 to -30	Total work time: 4 hours. Alternate 1 hour in and 1 hour out of the							
	low-temperature area.							
-30 to -70	Two periods of 30 minutes each at least 4 hours apart. Total low							
	temperature work time allowed is 1 hour.							
-70 to -100	Maximum permissible work time is 5 minutes during an 8-hour							
	working day. At these extreme temperatures, completely enclosed							
	headgear, equipped with a breathing tube running under the clothing							
	and down the leg to preheat the air, is recommended.							

Table 6 - Work/Warm-up Schedule applies to any 4-hour work period with moderate to heavy work activity, warm-up periods of ten (10) minutes in a warm location and an extended break (e.g., lunch) at the end of the 4-hour period in a warm location. For light-to-moderate work (limited physical movement) apply schedule one step lower. For example, at -35 °C (-30 °F) with no noticeable wind, a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period.

Table 6 Work/Warm-up Schedule											
-	Air Temperature - Sunny Sky		ceable 5 mph Wind		n Wind	10 mph wind		15 mph wind		20 mph wind	
°C (approx.)	°F (approx.)	Max Work Period	No. of Breaks	Max Work Period	No. of Breaks	Max No. of Work Breaks Period		Max Work Period	No. of Breaks	Max Work Period	No. of Breaks
-26° to -28°	-15° to -19°	Norm	1	Norm	1	75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	Norm	1	75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min 5 Non-Emergency Work Should Cease		Non-Emergency Work Should Cease	
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5				
-38° to -39°	-35° to -39°	40 min	4	30 min	5		nergency				
-40° to -42°	-40° to -44°	30 min	5		nergency	Work Should Cease			ase		
-43° & below	-45° & below	Non-Em Work S Cea	Should	Work Should Cease		Couse					

To guard against cold injuries, workers should wear appropriate clothing and use warm shelters for removing personal protective equipment. The personnel decontamination trailer will be used as a warm shelter when required. The SSHO may periodically monitor workers' physical conditions, specifically checking for symptoms of frostbite.

8.3 Solar Radiation Protection

Where employees are exposed to solar radiation for short periods and there is a potential for sunburn or exposure for prolong periods where long-term exposure could lead to health effects such as skin cancer sunscreen will be provided to prevent exposure. Sunscreens will be used only in accordance with the manufactures recommendations or instructions.

9.0 ACCIDENT PREVENTION PROCEDURES/PRACTICES

9.1 Medical and First Aid Requirements

Applicable Standards:

OSHA 29 CFR 1926.23. & 1926.50

USACE EM 385-1-1 Section 3 – Medical and First Aid Requirements

First-aid kits/stations and required contents are maintained in a serviceable condition. Unit-type kits have all items in the first-aid kit individually wrapped, sealed, and packaged in comparable sized packages. First-aid stations will be located as close as practicable to the highest concentration of personnel. First-aid stations will be well-marked and available to personnel during all working hours. First-aid stations will be equipped with a first-aid kit, the size of which will be dependent upon the number of personnel normally employed at the work site. First aid kits will be easily accessible to all workers and protected from the weather. The individual contents of the first aid kit shall be kept sterile. First aid kits shall be inspected at least every three months when work is in progress to ensure they are complete, in good condition, and have not expired.

Emergency telephone numbers and a high visible map and route to the hospital will be clearly posted on the Site bulletin board and place in any vehicle that may be used to transport a worker to the hospital.

There will be a minimum of two people at the Site that are trained in first aid and cardiopulmonary resuscitation (CPR). The names of Site personnel that are trained in first aid and CPR shall be posted on emergency contact sheets as well as the job site bulletin board.

9.2 Hazardous Substances

Applicable Standards:

OSHA 29 CFR 1926.53 & 1910.1200

USACE EM 385-1-1 Section 6 – Hazardous or Toxic Agents & Environments

When hazardous substances are used in the workplace, the hazard communication program dealing with MSDSs, labeling, and employee training will be in operation. MSDS materials will be readily available for each hazardous substance used. A training program, plus regular question and answer sessions on dealing with hazardous materials will be given to keep employees informed. The program will include an explanation of what an MSDS is and how to use and obtain one; MSDS contents for each hazardous substance or class of substances; explanation of the "Right to Know"; identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area; the health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used; as well as informing them of hazards of non-routine tasks and unlabeled pipes. A current monthly inventory is maintained for all hazardous substances at the Site. This inventory and a map showing the location of hazardous material is kept in the Safety Office and is readily available for emergencies. The inventory and map will be made available to the local fire department upon request.

Sevenson's Hazardous Communication Program has been included in the APP in Appendix G.

9.3 Fall Protection

Applicable Standards:

OSHA 29 CFR 1926.500, 501, 502, 503; 1926.106

USACE EM 385-1-1 Section 21 - Safe Access and Fall Protection

To protect employees when they are exposed to fall hazards, some form of fall protection must be used. The most common forms of fall protection are guardrails, personal fall arrest systems, hole covers, and safety nets. Any one or all of these forms of fall protection may be used on construction worksites. The current OSHA standards also require that employees receive training regarding fall protection issues, and that the training is documented. An alternate fall arrest program may be implemented in cases where none of the traditional methods of fall protection are feasible. Components of our fall protection plans are listed below:

Personal Fall Arrest System - The three main parts of a personal fall arrest system are the full body harness, the lanyard/lifeline, and a suitable anchorage. Particular attention must be paid to the anchorage point(s) to ensure that they are capable of supporting 5,000 lb. (22.2 kN) or two times the maximum load on an engineered system. The 6 foot free fall energy absorbing lanyard shall only be used with the tie off point is above the dorsal D-ring. This creates a free fall distance less than six feet. If the tie off point cannot be placed above the dorsal D-ring, a self-retractable lifeline or a 12 foot energy absorbing lanyard shall be used.

Guardrail Systems - Guardrail systems consist of a top rail, mid rail, and if necessary a toe board. Guardrail systems can be made of various materials, and they must be capable of supporting a 200-pound force.

Training - All employees must receive training on the nature of the fall hazards at the site and on how to avoid falls. Employees should be familiar with the use of all personal fall arrest systems and must wear the equipment when necessary.

Employee exposure to work above 6 feet is not anticipated for this project. In the event it becomes necessary to protect workers from falls a situation specific Fall Protection Plan shall be developed by a competent or qualified person for fall protection and submitted to the COR for review.

9.4 Electrical

Applicable Standards:

OSHA 29 CFR 1926.400 through 449, 1910.301 through 399, 1926.550(a)(15)

USACE EM 385-1-1 Section 11- Electrical

Electricity is a serious workplace hazard that must be respected at all times. It is important to remember that exposure to even a little electric current can kill! The best protection around electricity is distance -- ample distance between the worker and the conductive materials. The following safe work practices and procedures will help prevent electrical accidents on the jobsite.

Workers should observe and strictly obey all warning and danger signs around electrical apparatus. They should never close a switch that has a danger tag on it signed by or placed there by someone else.

Untrained people must not open any electrical enclosures. The one exception is that the door on a circuit breaker panel board may be opened to operate the switches, but other types of electrical enclosures should not be opened.

Extension cords or any power tools or equipment will be removed from service when the cords are frayed, worn out, or the wires are bare. Defective equipment shall be reported to the supervisor immediately. Report all unguarded or broken light bulbs. Do not hang lights by their cords unless the light was designed to be suspended in that manner. Extension cords shall not be supported by metal objects such as nails or fencing, nylon wire tires or string shall be used to suspend or secure cords.

Installation Safety Requirements: Live parts of electrical equipment operating at 50 volts or more must be guarded against accidental contact and requires flash arc protection. Entrance to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons from entering. All pull boxes and breaker boxes must be labeled to indicate the equipment they switch. Electric installations that exceed 600 volts and that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or area controlled by a lock. In addition, equipment must be marked with appropriate caution signs.

Conductors and equipment must be protected from over current in accordance with their ability to safely conduct current, and the conductors must have sufficient current carrying capacity to carry the load. Fuses and circuit breakers must also be located or shielded so that employees will not be burned or otherwise injured by their operation.

All wiring components and utilization equipment in hazardous locations must be maintained in a explosion-proof condition without loose or missing screws, gaskets, threaded connections, seals, or other impairments to a tight condition. Unless identified for use in the operating environment, no conductors or equipment can be located:

- In damp or wet locations.
- Where exposed to gases, fumes, vapors, liquids, or other agents having a deteriorating effect on the conductors or equipment.
- Where exposed to excessive temperatures.

Ground Fault Circuit Interrupters To ensure electrical safety from shocks on all construction sites, all 120-volt, single-phase, 15- and 20-amp receptacle outlets and portable generators must be protected by ground fault circuit interrupters (GFCIs).

Each 120-volt extension cord, tool, piece of equipment, and receptacle needs to be inspected and tested before first use, before equipment is returned to service following repairs, and before equipment is used after any incident that can be reasonably suspected to have caused damage.

Each extension cord, tool, or piece of equipment should be visually inspected by the user before each day's use to determine signs of damage. Equipment found to be damaged or defective (frayed or damaged insulation, crushed cable, loose or missing covers or screws, and missing ground prong on plugs, etc.) must not be used until repaired. Equipment suspected to be damaged or defective should be inspected and tested prior to use.

Overhead Transmission and Distribution Lines - A significant hazard on construction jobsites is the accidental contact of moving equipment with live overhead power distribution and service lines. Where work must be done near live lines, the movement of all equipment such as cranes, excavators and other equipment must be guided by an observer who can observe the clearance of the equipment from energized lines and give timely warning to equipment operators. The minimum clearance between live lines and any jobsite equipment is 10 feet (3.0 m), and the clearance increases with increasing line voltages (USACE EM 385-1-1 Table 11-1).

Energized work shall not be performed without prior authorization from the COR. If energized work needs to be performed, the qualified licensed electrician or qualified lineman must prepare and submit an energized work permit. The work permit must include the minimum information:

- Description and location of work;
- Justification for why the work must be performed in an energized condition;
- Description of the work practices to be followed;
- An electrical shock analysis and boundaries;
- Arc flash hazard analysis and flash boundary determination;
- Necessary PPE to safely perform the task;
- Means to restrict access of unqualified persons in work area;
- Evidence of completing the job briefing with affected personnel.

9.5 Lockout and Tagout

Applicable Standards:

OSHA 29 CFR 1926.417 & 1910.147

USACE EM 385-1-1 Section 12- Control of Hazardous Energy (Lockout/Tagout)

Whenever maintenance, servicing, or repairs are done to equipment, tools and machinery, there is a potential for injury from the accidental energization or movement of the equipment. Prior to beginning any work on equipment, steps must be taken to identify the energy sources present in the equipment, and to ensure that the energy sources are neutralized.

Hazardous energy sources fall into categories such as electrical, pneumatic, hydraulic, and potential (gravity, springs, etc.). One simple control in the construction industry has been to unplug cord-connected equipment. Vehicles and other motorized equipment can be protected from accidental starting by disconnecting the battery. Other controls include the use of identifiable padlocks on disconnects, breaker switches, and valves. Stored energy has the potential for release with great kinetic force and potential for injury.

All machinery or equipment capable of movement must be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required. The lockout procedure requires that stored energy (i.e. mechanical, hydraulic, air) be released or blocked

before equipment is locked out for repairs. Appropriate employees are provided with individually keyed personal safety locks. Employees are required to keep personal control of their key(s) while they have safety locks in use. Employees must check the safety of the lockout by attempting a start up after making sure no one is exposed. Where the power disconnector does not also disconnect the electrical control circuit, the appropriate electrical enclosures must be identified. The control circuit can also be disconnected and locked out.

Temporary electrical service installation will be performed by a qualified electrician. Work may only be performed on de-energized equipment. Lockout/Tagout procedures will be implemented to assure the safety of personnel during electrical work activities.

Underground electric lines will be located and clearly marked. These utilities will be protected, removed, or relocated as needed to do the work safely. The excavation work will not be allowed to endanger the underground utility or the people doing the work. Barricades, shoring, or other supports as needed, will protect utilities left in place that are exposed by the excavation.

Sevenson's Control of Hazardous Energy Program is located in Appendix H of the APP.

9.6 Motor Vehicles and Mechanized Equipment

Applicable Standards:

OSHA 29 CFR 1926.600 through 606, 1926.1000 through 1003

USACE EM 385-1-1 Section 18 – Motor Vehicles, Machinery and Mechanized Equipment, All Terrain Vehicles, Utility Vehicles, and Specialty Vehicles

Many potential hazards are associated with the use of motor vehicles and mechanized equipment on construction projects. Motor vehicles may be involved in accidents due to mechanical failures or operator errors, resulting in injuries to operators themselves or to bystanders. To minimize accidents resulting from the use of motor vehicles, the following safety procedures need to be implemented and enforced on all company projects:

- All equipment shall be inspected by a competent person prior to being used on site. The competent
 person for heavy equipment shall be a master mechanic or the Lead Operating Engineer assigned to
 the project. This inspection shall be conducted in accordance with the manufacturer's
 recommendations.
- Vehicles and equipment shall be inspected by the user daily before use.
- Heavy equipment and vehicles assigned to the project shall participate in Sevenson's scheduled maintenance and inspection program. A master mechanic shall be responsible for performing all scheduled maintenance and inspections in accordance with manufacturer's recommendations.
- Inspection, test, repair, and maintenance records shall be maintained at the site and made available to the COR upon request.
- All equipment left unattended at night, adjacent to highways or construction areas should have lights, reflectors, and/or barricades to identify location of the equipment.

- Supervisory personnel will ensure that all machinery and equipment is inspected prior to each use to verify that it is in safe operating condition.
- Rated load capacities and recommended rules of operation must be conspicuously posted on all equipment at the operator's station.
- When vehicles or mobile equipment are stopped or parked, the parking brake must be set. Equipment on inclines must have the wheels chocked as well as the parking brake set.
- All vehicles or combinations of vehicles must have in operable condition at least:
 - Two headlights.
 - Two taillights.
 - Brake lights.
 - Audible warning device at operator's station.
 - Seat belts properly installed.
 - Appropriate number of seats for occupants.
 - Service, parking, and emergency brake system.
- Operators should not travel in reverse with motor equipment having an obstructed rear view unless:
 - The vehicle is equipped with an audible, functioning reverse signal alarm. The backup alarm shall be loud enough to be heard over the surrounding noise level. If not, a spotter will be required.
 - The vehicle is backed up only under the guidance of an observer who says that it is safe to do so.
- Only those trained in the use of a specific type of machinery should be allowed to operate the machinery. Operators of heavy equipment and trucks greater than 26,000 lbs (11,794 kg) gross vehicle weight used in traffic must have a commercial driver's license.
- Materials handling equipment such as scrapers, front-end loaders, dozers, and similar equipment must be provided with Rollover Protective Structures (ROPS).
- Accessible areas within the swing radius of cranes, backhoes, and other rotating machinery need to
 be barricaded to prevent employees from being struck or crushed by the rotating parts of the
 machinery or their loads.
- Employees should not ride on or in motor vehicles unless seats with seat belts are provided.
- The use of other portable headphones, earphones, or other listening device while operating a motor vehicle is prohibited. Eating, drinking, or smoking while operating a motor vehicle is prohibited.
- No operator is to leave the equipment with the engine running.

• Only qualified individuals shall be permitted to repair heavy equipment or vehicles. Repairs must be made in accordance with manufactures recommendations and specifications.

9.7 Utility Vehicles

Applicable Standards:

USACE EM 385-1-1 Section 18 – Motor Vehicles, Machinery and Mechanized Equipment, All Terrain Vehicles, Utility Vehicles, and Specialty Vehicles

Utility vehicles are defined as specialty vehicles that are designed to perform off-road utility tasks such as passengers and cargo transportation. These include Rangers, Rhinos, M-Gators, Gators, Mules, etc.

Personnel who operate a utility vehicle will be trained to ensure familiarity with the use of all controls and understand proper moving, stopping, turning, and other operating characteristics of the vehicle. Operators will review all training materials provided by the manufacturer for the specific vehicles they are permitted to operate. Training will also include the following:

- Basic riding tips from the manufacturer's published literature for each vehicle;
- Reading terrain;
- Climbing hilly terrain;
- Descending a hill;
- Traversing a slope;
- Riding through water;
- Cargo carriers and accessories:
- Loading and unloading;
- Troubleshooting;
- Proper preventive maintenance such as oil level, tire pressure requirements, and scheduled maintenance requirements according to the manufacturer's guidelines.

A copy of the operator's manual must be kept on the vehicle at all times and protected from the elements. All vehicles will be required to have an operable horn and brake lights. If vehicles are used during pre-dawn and post dusk times, two head lamps, two tail lights, and a yellow flashing light will be required.

Occupancy in the utility vehicle will be limited to the manufacture's designated seating capacity for built in seats. Personnel will not be permitted to ride in the cargo area unless the vehicle is otherwise equipped. During an emergency, medical litters may be placed in the cargo area but must be secured to prevent movement or tipping. The litter must be strapped to cargo tie downs in the rear and the cargo shelf in the front.

Seat belts will be worn by all occupants in the utility vehicle. All occupants shall where goggles at all time when the utility vehicle is in motion unless a windshield is present. If the utility vehicle is not

equipped with ROPS, all occupants will be required to wear approved head protection that conforms to DOT218 standards as well as protective goggles or face shield.

9.8 Hand and Power Tools

Applicable Standards:

OSHA 29 CFR 1926.300 through 307

USACE EM 385-1-1 Section 13 – Hand and Power Tools

Tools are such a common part of construction work that it is difficult to remember that they may pose hazards. Workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent injuries from those hazards. To prevent accidents resulting from the use of hand- and power-operated hand tools, management personnel need to implement and enforce the following safe work procedures on all construction jobsites.

Broken, defective, burned, or mushroomed tools will not be used. They are be reported and turned in for replacement. The proper tool and equipment should be selected and used for each task. For example, a wrench should not be used as a hammer or a screwdriver as a chisel. Leaving tools on scaffolds, ladders, or any overhead working surfaces is hazardous because they may fall. Racks, bins, hooks, or other suitable storage space must be provided to permit convenient arrangement of tools. Striking two hardened steel surfaces together is hazardous because pieces of metal may break off (i.e., two hammers, or a hammer and hardened steel shafts should not be struck together). The practice of throwing tools from one location to another, from one employee to another, or dropping them to lower levels will be prohibited. When it is necessary to pass tools or material under the above conditions, suitable containers and/or ropes must be used.

Wooden tool handles must be sound, smooth, in good condition and securely fastened to the tool. Sharp-edged or pointed tools should never be carried in employee's pockets. Only non-sparking tools will be used in locations where sources of ignition may cause a fire or explosion. Tools requiring heat-treating should be tempered, formed, dressed, and sharpened by workmen experienced in these operations. Tools designed to accommodate guards must be equipped with such guards when in use.

All rotating, reciprocating or moving parts of equipment (belts, gears, shafts, flywheels, etc.) must be guarded to prevent contact by employees using such equipment. All hand-held power tools (e.g., circular saws, chain saws, and percussion tools) without a positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when pressure is released. A positive "on-off" control must be provided on platen sanders, grinders with wheels 2 inches in diameter or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks ½ in wide or less.

A momentary contact "on-off" control must be provided on all hand-held powered drills, tapers, fasteners drivers, horizontal, vertical and angle grinders with wheels greater than 2 inches in diameter. Besides safety hazards, the use of power tools sometimes creates potential health hazards as well. The use of jackhammer and chiseling equipment often results in silica and nuisance dust exposures that can sometimes be controlled by wetting the work surfaces. Many times, however, the use of dust/mist respirators is required to prevent overexposures.

In addition to dust hazards, the hand vibration inherent in the use of some power tools may result in a restriction of blood flow to the hands and fingers, causing numbness or tingling. If workers consistently experience these symptoms after the use of power tools, they should contact their supervisor so that steps may be taken to prevent further harm to the nerves and blood vessels in their hands. The use of a different tool, changes to the offending tool to reduce vibrations, and/or the use of special gloves may be recommended to deal with the vibration problems.

Electric Tools - Electric tools present several dangers to the user; the most serious is the possibility of electrocution. The following safe work procedures for electric tools must be implemented and enforced at all company construction projects. Tools must (1) have a three-wire cord with ground and be grounded, or (2) be double insulated, or (3) be powered by a low-voltage isolation transformer. A GFCI must be used or the tool must be double insulated to prevent the worker from electrical shock hazards. Never remove the third prong from the plug. Electric tools should be operated within their design limitations.

In general, gloves and safety footwear are recommended during use of electric tools. However, gloves should not be worn when they are a potential entanglement hazard with reciprocating or rotating tools.

When not in use, tools should be stored in a dry place. Electric tools should not be used in damp or wet locations.

Powered Abrasive Wheel Tools - Power abrasive wheel tools present a special safety problem because they may throw off flying fragments. The following safe work procedures for powered abrasive wheel tools need to be implemented and enforced at all company construction projects. Portable grinding tools must be equipped with safety guards to protect workers from flying fragments as well as the moving wheel surface. Inspecting and sound- or ring-testing abrasive wheels prior to mounting is required to ensure that they are free from cracks or defects. Checking to ensure that the abrasive wheel RPM rating is appropriate for the tool will also help prevent wheel failures. The following work rules are appropriate for using a powered grinder:

- Always use eye protection and a face shield.
- Turn off the power when not in use.
- Never clamp a hand-held grinder in a vise.
- To prevent the wheel from cracking, the user should ensure that it fits freely on the spindle.
- Grinding wheel users should never stand directly in front of the wheel during start-up because
 there is always a possibility that the wheel may disintegrate (explode) when accelerating to full
 speed.

Pneumatic Tools - Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. The following safe work procedures for pneumatic tools must be implemented and enforced at all company construction projects. Pneumatic tools that shoot nails, rivets, or staples and operate at pressures more than 100 lbs/in² must be equipped with a special device to keep fasteners from being ejected unless the muzzle is pressed against the work surface. These tools shall only shoot one projectile with each pull of the trigger when not attaching sheet goods. When sheet goods are attached the tool may be operated in the contact trip mode (as recommended by the manufacturer). Eye protection is required and face protection recommended for employees working with pneumatic tools.

Hearing protection is required when working with noisy tools such as jackhammers. When using pneumatic tools, users should check to see that the tools are fastened securely to the hose to prevent the hose from becoming disconnected. All hoses exceeding ½" inside diameter must have a safety device at the supply source or branch line to reduce pressure in the event of hose failure.

Airless spray guns that atomize paints and fluids at high pressures (1,000 lbs or more per in²) must be equipped with automatic or visual manual safety devices that will prevent pulling the trigger until the safety device is manually released. Workers operating a jackhammer are required to wear safety glasses, safety footwear, and hearing protection. Compressed air guns should never be pointed toward anyone. A safety clip or retainer must be installed to prevent attachments from being unintentionally shot from the barrel of the tool.

Liquid-Fueled Tools - Liquid-fueled tools are usually powered by gasoline. Vapors that can burn or explode and give off dangerous exhaust gases are the most serious hazards associated with liquid-fuel tools. The following safe work procedures for liquid-fueled tools need to be implemented and enforced at all company construction projects.

Gas or fuel should be handled, transported, and stored in approved flammable liquid containers. These containers, also known as safety cans, are no more than 5 gallons in capacity and have a spring-closing lid and spout cover that will safely relieve internal pressure when subjected to fire exposure. Before refilling the tank for a fuel-powered tool, the user must shut down the engine and allow it to cool to prevent accidental ignition of hazardous vapors. Effective ventilation and/or personal protective equipment is necessary when using a fuel-powered tool inside a closed area. Fire extinguishers must be readily available in the work area.

9.9 Fire Protection and Prevention

See APP section 9.p.

9.10 Confined Space Entry

Applicable Standards:

OSHA 29 CFR 1910.146

USACE EM 385-1-1 Section 34 – Confined Space

A confined space is a space that is large enough and so configured that an employee can physically enter and perform assigned work, has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits) and is not designed for continuous employee occupancy. Simply working in a confined space is not necessarily a hazard. However, if certain hazardous conditions exist prior to, or are created during entry, then the confined space must be treated with utmost care.

Conditions that make a confined space especially dangerous (i.e., make it a permit-required space) are:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.

- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard.

A hazardous atmosphere includes spaces that may expose employees to flammable gases, vapors, mists, or dusts; to an oxygen deficiency (<19.5 percent) or oxygen enriched environment (>22.0 percent); to air contaminants in excess of the permissible exposure limit (PEL), or to any other atmospheric condition that is an immediate danger to life and health (IDLH).

When a permit-required space is present, the following hierarchy of controls should be used on the space:

- Avoid entry.
- Eliminate the hazards that make the confined space a permit-required space. Ventilation, lockout/tagout, block and bleed, and other procedures can be used to eliminate hazards. Hazard elimination must be verified by air monitoring and other test procedures.
- Eliminate the hazards to the point that only atmospheric hazards remain. Use the "atmospheric hazard only" procedures entry system discussed in 1910.146(c)(5).
- Minimize and control hazards to the fullest extent possible, and enter only after the requirements of a full permit entry have been satisfied.

Employees must receive training on confined spaces so that they will acquire the understanding, knowledge, and skills necessary for a safe entry into the confined space. Confined space training will be documented.

Sevenson's Confined Space Entry Program has been included as Appendix I to the APP. The **SSHO shall be the competent person** for the Confined Space Entry Program.

9.11 Welding and Cutting

Applicable Standards:

OSHA 29 CFR 1926.350 through 354

USACE EM 385-1-1 Section 10 – Welding and Cutting

Welding and cutting operations present various safety and health hazards. Welding and cutting operations on lead-painted surfaces often create lead fumes by "boiling off" the lead. These lead fumes may cause lead poisoning if inhaled or ingested in excessive amounts. Other metal fumes such as iron oxide, chromium, zinc, manganese, and cadmium may also be present during welding and cutting operations. Safety hazards such as fire may result in fatalities, serious injuries, and/or property damage. Therefore, in an effort to eliminate or reduce the hazards associated with welding and cutting operations, the following rules and procedures shall be included and enforced in the welding safety program.

Welding and Cutting - Only qualified welders shall be authorized to do welding, heating, or cutting. Inspect work areas for fire hazards and proper ventilation before welding or cutting. Avoid welding or

cutting sparks and hot slag. Be alert to hot surfaces and avoid touching metal surfaces until they have cooled. Place compressed gas cylinders in an upright position and secure in place to prevent dropping or falling. Handle with extreme care and do not store near any sources of heat. Remove any combustibles when welding or cutting must be done. If removal is not feasible, cover combustibles with a noncombustible material. When welding near any combustible material, another employee must be posted to serve as a fire watch. Make sure this person has a fire extinguisher available and keep him/her in the area after welding/cutting is completed until all danger of fire is past.

A hot-work permit system will be implemented at the Site. When working in the vicinity of welding operations, wear approved eyewear and avoid looking directly at the flash as serious flash burns could result. When opening valves on tanks that have regulators installed, be sure the pressure adjustment screw is all the way out and do not stand in front of the regulator. An internal failure could rupture the regulator and cause the adjustment screw to become a missile.

Primers, paints, and other coatings should be removed, where feasible, from the area to be heated and for at least 4 inches on all sides.

Gas Welding and Cutting - When transporting, moving, and storing compressed gas cylinders, always ensure that the valve protection caps are in place and secured. Secure cylinders on a cradle, slingboard, or pallet when hoisting. Never hoist or transport the cylinders by means of magnet or choker slings. Move cylinders by tilting and rolling them on their bottom edges. Do not allow cylinders to be dropped, struck, or come into contact with other cylinders violently. Secure cylinders in an upright (vertical) position when transporting by powered vehicles. Do not hoist cylinders by lifting on the valve protection caps. Do not use bars under valves or valve protection caps to pry cylinders loose when frozen. Use warm, not boiling, water to thaw cylinders loose.

Remove regulators and secure valve protection caps prior to moving cylinders, unless cylinders are firmly secured on a special carrier intended for transport. Close the cylinder valve when work is finished, when cylinders are empty, or when cylinders are moved at any time. Secure compressed gas cylinders in an upright position (vertical) except when cylinders are actually being hoisted or carried. Oxygen cylinders shall be stored at least 20 feet from other combustible materials such as acetylene. Alternatively, oxygen and fuel gas cylinders may be separated by a 5 feet-high non-combustible barrier with at least a 30-minute fire resistance rating.

Arc Welding and Cutting - Use only manual electrode holders that are specifically designed for arc welding and cutting. All current-carrying parts passing through the portion of the holder must be fully insulated against the maximum voltage encountered to ground. All arc welding and cutting cables must be completely insulated, flexible type, and capable of handling the maximum current requirements of the work in progress. Employees shall report any defective equipment to their supervisor immediately and refrain from using such equipment. Shield all arc welding and cutting operations, whenever feasible, by noncombustible or flameproof screens to protect employees and other persons working in the vicinity from the direct rays of the arc.

Fire Prevention - Welders should locate the nearest fire extinguisher in their work area in case of a fire emergency. Fire extinguishing equipment must be immediately available in the work area. Never use matches or cigarette lighters to light torches. Use only friction lighters to light torches. Never strike an arc on gas cylinders. Move objects to be welded, cut, or heated to a designated safe location. If the objects cannot be readily moved, then all movable fire hazards in the vicinity must be taken to a safe place or otherwise protected. Fuel lines shall have flashback arrestors. Do not weld, cut, or heat where the application of flammable paints or the presence of other flammable compounds, or heavy

dust concentrations creates a hazard. Additional employees must be assigned to guard against fire while the actual welding, cutting, or heating is being performed when the operation is such that normal fire prevention precautions are not sufficient. Prior to applying heat to a drum, container, or hollow structure, provide a vent or opening to release any built-up pressure during the application of heat. Never cut, weld, or heat on drums, tanks, process lines, or containers that have contained flammable liquids until they have been purged and cleaned. A Permit for Open Flame or Welding shall be issued prior to any of the above work being performed.

Stainless steel, chrome alloy steel, or chrome plated metal – Personnel shall be protected against dangerous concentrations of nitrogen dioxide and other air contaminates such as hexavalent chrome or Cr-6 by means of ventilation or other engineering controls. If engineering controls are not feasible Cr-6 exposure can be controlled with the use of a respirator. Air sampling for Cr-6 exposure will be conducted for this type of welding activity in accordance with OSHA ID 215 sampling.

9.12 Trenching and Excavations

Applicable Standards:

OSHA 29 CFR 1926.650 through 652

USACE EM 385-1-1 Section 25 – Excavation

Trenching and excavation work presents a serious risk to all employees. The greatest risk is the cavein of a trench or excavation. Cave-in accidents are much more likely to result in worker fatalities than any other excavation-related accidents. Other hazards include contact with buried utilities. Because of the hazards associated with excavation work, the following safe work practices and procedures will be implemented and enforced:

- Remove or support all surface encumbrances whenever their location creates a hazard to employees.
- Identify underground installation (e.g., sewer, utility, fuel) locations prior to opening an excavation. Contact utility companies or owners to advise on the proposed work and ask for the locations of utility underground installations prior to opening an excavation. Additionally, the New Jersey One Call (Dig Safely) can be contacted at 1-800-272-1000 for assistance in identifying utilities in your area.
- Retain a copy of the NJ One Call Mark out Ticket and submit with the daily safety report.
- Verify underground utility marks against land surveyor maps to ensure mark outs are in the proper location.
- Protect, support, or remove underground installations, as necessary, to safeguard employees working in open excavations.
- Structural ramps used by employees as a means of access or egress from excavations must be designed by a **competent person**.
- Structural ramps for access and egress of equipment must be designed by a **competent person** qualified in structural design.

- All excavations or trenches that are 4 feet (1.2 m) or more in depth must have a stairway, ladder, ramp, or other safe means of access and egress within 25 feet (7.6 m) of travel in any direction.
- The edges of a trench or excavation must be barricaded when the excavation is not readily seen because of plant growth or some other visual barrier.
- No employees are permitted underneath loads handled by lifting or digging equipment.
- A warning system (e.g., barricades, signals, or stop logs) must be used when mobile equipment is operated adjacent to an excavation.
- Testing must be conducted in excavations where oxygen-deficient and/or toxic atmospheres exist or could reasonably be expected to exist before employees are permitted to enter excavations greater than 4 feet (1.2 m) in depth.

Take adequate precautions, such as proper respiratory protection or ventilation, to prevent employee exposure to oxygen-deficient and other hazardous atmospheres. Emergency rescue equipment must be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation.

Never work in excavations where water has accumulated or is accumulating, unless adequate precautions have been taken to protect against the hazards posed by water accumulation.

The **competent person** (**Superintendent**) will conduct inspections of excavations prior to the start of work and as necessary throughout each shift. Inspections must also be made after <u>every</u> rainstorm. Precautions must be taken before employees enter *a trench of any depth* that shows signs of water accumulation or wall sloughing due to moisture. Preventive precautions include the use of support or shield systems to prevent cave-ins, and the use of water removal pumps.

Trenches 5-feet or more in depth must be shored, benched, or sloped back to an angle of incline required to prevent cave-ins. The angle of incline required varies with differences in the soil type, environmental conditions of exposure, and the application of surcharge loads. Any excavation in unstable soil may require shoring or sloping.

Backfilling and removal of trench boxes or supports will progress together from the bottom of the trench. Jacks, supports, or braces will be released slowly, and in unstable soil, ropes will be used to pull out the jacks and braces from above and clear of the excavation. All personnel will be clear of the trench.

Materials must be placed 2-feet or more from the edge of the excavation. Material must be placed at a distance to prevent excessive loading on the face of the excavation. Precautions must be taken to prevent such materials from falling into the excavation.

Excavations will be protected by the use of temporary fencing to ensure site personnel, visitors, or the public do not inadvertently fall into an excavation. Excavations will be protected in accordance with EM 385-1-1 section 25.B *Safe Access*.

An Excavation Plan has been prepared and located in Appendix J of the APP.

9.13 Stairways and Ladders

Applicable Standards:

OSHA 29 CFR 1926.1050 through 1060

USACE EM 385-1-1 Section 21 Safe Access and Fall Protection

Stairways and ladders are a major source of injuries and fatalities among construction workers. Because of the potential hazards involved in using stairways and ladders, the following safety practices and procedures need to be implemented and enforced at all construction projects. Ladders that project into passageways or doorways where they could be struck by personnel, moving equipment, or materials being handled must be secured to prevent accidental displacement or be protected by barricades. Workers should always face the ladder and use both hands when going up and down ladders. Materials and tools should be lowered or raised by a rope or other mechanical means. Hold on to the railing on stairways. The areas around the top and base of ladders must be free of tripping hazards such as loose materials, trash, and electrical cords. The same holds true for the bottom of stairways and on stairway platforms.

Ladders - Ladders must be capable of supporting four times the maximum intended load. Ladder rungs, cleats, and steps must be parallel, level, and uniformly spaced (not less than 10" nor more than 14"). Do not tie or fasten ladders together to provide longer sections unless they are specifically designed for such use. All stepladders must be equipped with a metal spreader or locking device. Do not paint wooden ladders, except to stencil for identification. Maintain ladders free from oil, grease, and other slipping hazards. Ladders must extend at least 3 feet above the upper landing surface and be secured. The horizontal distance for the base of the ladder should extend 1 foot for every 4 feet in vertical distance. Wood job-made ladders must be used at an angle so that the horizontal distance is one-eighth the working length of the ladder. Do not use ladders on slippery surfaces unless they have been properly secured or provided with slip-resistant feet. Do not move, shift, or extend ladder while occupied. Never stand on the top two steps of a stepladder.

A competent person on a periodic basis and after any occurrence that could affect their performance must inspect ladders. Ladders with structural defects must be tagged with "Do Not Use" or similar language and withdrawn from service until repaired. Never use a metal ladder when working on electrical equipment or near electrical equipment where contact is possible. Any employee who uses a ladder or stairway must receive training by a **competent person** in the following areas:

- Types of fall hazards.
- Correct procedures for erecting, securing, maintaining, and disassembling fall protection systems.
- Proper construction (man-made), use, placement, and handling.
- Maximum intended load-carrying capacities.
- Requirements contained within 29 CFR 1926 Subpart X.

Stairways - Stairways that are not permanent parts of the structure must have landings of not less than 30 inches in the direction of travel. A platform must be provided where doors or gates open directly on a stairway. Metal pan landings and metal pan treads must be filled in with wood or other materials if they are to be used prior to being finished. Maintain all parts of stairways free from hazardous

projections, such as protruding nails. Eliminate slippery conditions on stairways before the stairways are used to reach other levels. Every flight of stairs with four or more risers or rising more than 30 inches must have standard stair railings or standard handrails.

It is not anticipated that work at heights greater than 6 feet will be required during this project.

9.14 Materials Handling, Storage, Use, and Disposal

Applicable Standards:

OSHA 29 CFR 1926.250 through 252

USACE EM 385-1-1 Section 14 – Material Handling, Storage, and Disposal

In the handling of materials, employees must know the following: There must be safe clearance for equipment through aisles and doorways. Vehicles must be shut off and brakes must be set prior to loading or unloading. Containers of combustibles or flammables, when stacked while being moved, must be separated by dunnage sufficient to provide stability. Trucks and trailers will be secured from movement during loading and unloading operations. Hand trucks must be maintained in safe operating condition. Chutes must be equipped with sideboards of sufficient height to prevent the handled materials from falling off. At the delivery end of rollers or chutes, provisions must be made to brake the movement of the handled materials. Hooks with safety latches or other arrangements will be used when hoisting materials, so that slings or load attachments won't accidentally slip off the hoist hooks. Securing chains, ropes, chokers, or slings must be adequate for the job to be performed. When hoisting material or equipment, provisions must be made to assure no one will be passing under the suspended loads.

Stack, rack, block, interlock, or otherwise secure all materials and supplies to prevent sliding, falling, or collapse. Post the maximum safe load limits for floors within buildings and structures in a conspicuous location. Never exceed the maximum safe load limit. Keep aisles and passageways clear to provide for the free and safe movement of material handling equipment and employees. Use ramps, blocking, or grading when a difference in road or working levels exists to ensure the safe movement of vehicles between the two levels. Do not place material within 6-feet of any hoistway or floor opening inside buildings under construction, nor within 10-feet of an exterior wall that does not extend above the material being stored. Stack bagged materials by stepping back the layers and cross-keying the bags at least every 10 bags high. Do not store materials on scaffolds or runways in excess of supplies needed for immediate operations. Remove all nails from used lumber prior to stacking. Stack lumber on level and solidly supported sills. Do not stack lumber higher than 20-feet (16-feet if handled manually).

Stack and block structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, so as to prevent spreading or tilting. Attach handles or holders to the load to reduce the possibility of pinching or smashing fingers. Unload materials close to the point of final use to avoid unnecessary lifting. Do not stack non-compatible materials in the same pile.

Manual Materials Handling - Employees working alone should not attempt to lift or move a load that is too heavy for one person - get help! When working with materials stored in silos, hoppers, tanks, or similar storage areas, be aware that confined spaces may exist. Attach handles or holders to the load to reduce the possibility of pinching or smashing fingers. Wear protective gloves and clothing (i.e., aprons), if necessary, when handling loads with sharp or rough edges. When pulling or prying objects,

workers should be properly positioned. Riding loads, slings, the ball, crane hook, or other material hoisting equipment is prohibited.

Engineering Controls - Engineering controls should be used, if feasible, to redesign the job so that the lifting task becomes less hazardous. This includes reducing the size or weight of the object lifted, changing the height of a pallet or shelf, or installing a mechanical lifting aid

OSHA standard 1926.251 provides guidance about the limitations and uses of slings used in conjunction with other material handling equipment for the movement of material by hoisting. Slings covered by this standard include those made of alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope, and synthetic web (nylon, polyester, and polypropylene). Some general work practices related to rigging include:

- Rigging equipment must be inspected prior to use on each shift and during its use to ensure that it is safe. Defective rigging equipment will be removed from service.
- Rigging equipment must not be loaded in excess of its recommended safe working load. The standard provides load capacity tables for various types of slings and associated hardware.
- Rigging equipment, when not in use, must be removed from the immediate work area.

In addition to these general guidelines, the standard has specific requirements related to alloy steel chains, wire rope, natural and synthetic rope, and synthetic webbing. Employees performing rigging work should be adequately trained in the safety and functional aspects of rigging for materials handling operations.

9.15 Signs, Signals, and Barricades

Applicable Standards:

OSHA 29 CFR 1026.200 - 203

DOT Manual on Uniform Traffic Control Devices (MUTCD)

USACE EM 385-1-1 Section 8 - Accident Prevention Signs, Tags, Labels & Signals

The use of signs, signals, and barricades is essential to make employees aware that an immediate or potential hazard exists. The following sections discuss the primary ways that employees are made aware of hazards in their work areas.

Accident Prevention Signs/Tags - Signs, signals, regulated areas, and barricades must be used on each construction project as appropriate.

Danger Signs are used wherever an immediate hazard (i.e., exposed electrical conductor) exists. The danger signs must have red as the predominant color in the upper panel and a white lower panel for additional sign wording.

Caution Signs are used to warn against potential hazards or to caution against unsafe practices. The caution signs must have yellow as the predominant color with a black upper panel (yellow lettering of "caution" on the upper panel) and a yellow lower panel for additional sign wording.

Exit Signs, when required, should be in legible red 3/4" (1.9 cm) stroke letters, not less than 6" (15.2 cm) high, on a white field.

Safety Instruction Signs, when used, must be white with a green upper panel and white lettering to convey the principal message. Any additional wording must be in black lettering on the white background.

Directional Signals must be white with a black panel and a white directional symbol. Any additional wording must be in black lettering on the white background.

Traffic Signs must be posted at points of hazards in all construction areas. All traffic control signs or devices must conform to the DOT MUTCD and ANSI D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways*.

Accident Prevention Tags are used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc.

Out of Order Tags are used to designate equipment that requires repair or maintenance. Equipment with such a tag may not be used until the tag is removed.

Signaling - Flagmen or other appropriate traffic controls must be provided for operations where signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street. Signaling directions must conform to DOT Manual on Uniform Traffic Control Devices (MUTCD) and ANSI D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways. Stop/Slow sign paddles must be used by flagmen when hand signaling. Red flags, at least 18 in², may be temporarily used in traffic control. Flagmen are required to wear a high visibility green or orange reflective warning vest and a hard hat while flagging. Required signs and symbols must be visible at all times when work is being done, and removed or covered promptly when the hazard no longer exists.

Cones, Barrels, Barricades, and Barriers - Channeling devices such as cones, barrels, or barricades are required for jobsite roadways presenting a hazard to motorized equipment or vehicles. Barriers may also provide a greater degree of work zone protection. Consult traffic control resources such as the DOT MUTCD for guidance on establishing and working in road construction work zones.

9.16 Housekeeping

Applicable Standard:

29 CFR 1910.25

USACE EM 385-1-1 Section 14.C Housekeeping

A policy of trash removal and the maintenance of good housekeeping practices will be implemented. The accumulation of construction debris may pose a significant fire hazard in addition to tripping and falling hazards.

Good housekeeping practices are the result of planning and organization. All personnel on the site must work together to maintain a clean worksite. The prompt removal of waste materials will permit a free flow of traffic through the work areas. Daily, or more frequent, inspections will be conducted by the SSHO to verify that the housekeeping controls are in place and being enforced.

Housekeeping activities in themselves may pose health hazards such as exposures to dusts, biological agents, and discarded chemicals. Liquid and solid waste chemicals must be placed in leak-proof containers for proper disposal.

9.17 Hours of Service

Operators of equipment, such as hoisting equipment, mobile construction equipment, electrical power systems, hydraulically operated equipment, shall not be permitted to exceed 12 hours of duty time in a 24-hour period, including time worked at another occupation. A minimum of 8 consecutive hours shall be provided for rest in each 24-hour period.

Operators of motor vehicles, while on duty, shall not operate vehicles for a continuous period of more than 10 hours in any 24-hour period; moreover, no employee, while on duty, may operate a motor vehicle after being on duty status for more than 12 hours during any 24-hour period. A minimum of 8 consecutive hours shall be provided for rest in each 24-hour period.

9.18 Biological Hazards

There is a potential for encountering biological hazards such as bites from ticks, rodents, and snakes, and exposure to poison ivy and oak. Biological hazards and controls are presented below.

9.18.1 Needle Stick Injuries

A needle stick injury occurs when a carelessly discarded hypodermic needle penetrates your skin, for example, through stepping on a syringe and/or needle that has been discarded at the site. Needle stick injuries transmit infectious diseases, especially blood-borne viruses. Accidental punctures by contaminated needles can inject hazardous fluids into the body through the skin. There is potential for injection of drugs, but injection of infectious fluids, especially blood, is by far the greatest concern. Accidental injection of blood-borne viruses is the major hazard of needle stick injuries, especially the viruses that cause AIDS (the HIV virus), hepatitis B, and hepatitis C.

General Universal Precautions will be observed to prevent contact with hypodermic needles or other potentially infectious materials. Work practice controls will be used to eliminate or minimize employee exposure (i.e. inspect area prior to work). If a discarded needle sticks you, immediately report it to the SSHO. Following a report of an exposure incident, the employer will immediately make available to the exposed employee medical evaluation counseling, treatment, and post-exposure prophylaxis, when medically indicated.

If hypodermic needles are discovered in the work area, immediately notify the SSHO. DO NOT ATTEMPT to collect the hypodermic needle yourself. Sevenson will properly dispose of any collected bio hazardous wastes through a company that is authorized by the State of New Jersey to perform such services.

9.18.2 Ticks

Working in tall grass, especially in or at the edge of wooded areas, increases the potential for ticks to affect workers. Ticks are vectors of many different diseases including Rocky Mountain spotted fever, Q fever, tularemia, Colorado tick fever, Ehrlichiosis, and Lyme disease. They attach to their host's skin and intravenously feed on its blood creating an opportunity for disease transmission. Covering exposed areas of the body and the use of commercially prepared tick repellent, such as N, N-Diethyl-m-toluamide (DEET), help prevent tick bites. Please note that there are some concerns with the use of DEET on skin and associated potential adverse health effects. Permethrin infused clothing is available

on the retail market and will provide protection from ticks and other insects without the use or risk of skin sprays. Periodically during the workday, employees working in tall grass will inspect themselves for the presence of ticks and notify the SSHO of any tick bites as soon as possible.

Over the past few years New Jersey has seen a significant increase in the number of Ehrlichiosis cases. Ehrlichiosis is a seasonal disease observed mainly from April to September. In 1999, Ehrlichiosis became reportable to the CDC. Ehrlichiosis is an infection of white blood cells that affects various mammals, including mice, cattle, dogs, deer, horses, sheep, goats, and humans and usually presents itself as flu like symptoms 5-14 days after being bit. Symptoms usually are severe headache, over all discomfort, muscle pain, and fever, sometimes with chills. Nausea and vomiting are also common.

9.18.3 Rodents and Wildlife

During site operations, animals such as mice and rodents may be encountered. Workers will use discretion and avoid all contact with animals. If these animals are interfering with site operations, or if dead animals are observed, the SSHO should be contacted immediately for assistance and advice.

Hanta virus Pulmonary Syndrome (HPS) is a disease that may be contracted when a person comes into contact with Hanta virus-infected rodents, their nesting materials, droppings, urine, or saliva. HPS may develop when virus particles are inhaled, absorbed through broken skin or the eyes, or when bitten by an infected animal. The majority of HPS cases have been reported in the southwest; however, there is the potential for Hanta virus transmission in most regions with rodent populations. Risk to workers at the site is considered to be low; however, the severity of disease is high. Therefore, field personnel should be aware of the potential for exposure and should avoid coming into contact with rodents or their burrows or dens.

Rabies is an acute, infectious, often fatal viral disease transmitted to humans by the bite of warm-blooded, infected animals. This disease affects the central nervous system of humans. A rabid animal may be recognized by signs of raging, uncontrollable movement and possible foaming near or at the mouth. The best control method is avoidance of animals that could be rabid. If bitten by a potentially rabid animal, contact the SSHO immediately. The animal in question must be captured or trapped so that it can be tested for rabies. The bitten individual will seek medical attention immediately.

9.18.4 Poisonous Plants

Three or five leaves radiating from a single stem identify poison ivy, poison oak, and poison sumac. Poison ivy is in the form of a vine while oak and sumac are bush-like. All of these plants can produce a delayed allergic reaction. The plant tissues have an oleoresin, which is active in live, dead, and dried parts. The oleoresin may be carried through smoke, dust, contaminated articles, and the hair of animals. Symptoms usually occur 24 to 48 hours after exposure resulting in rashes that itch and blister. Should exposure to any of these plants occur, wash the affected area with a mild soap and water within one-half hour, but do not scrub the area. The best preventative measure for poisonous plants is recognition and avoidance.

Personnel who are acutely affected from poisonous plant exposure shall notify the SSHO prior to starting work on the project.

9.18.5 Snakes

The degree of toxicity resulting from snakebites depends on the potency of the venom, the amount of venom injected, and the size of the person bitten. Poisoning may occur from injection or absorption of venom through cuts or scratches. The most effective way to prevent snakebites is to avoid snakes in

the first place. Personnel should avoid walking at night or in high grass and underbrush. Visual inspection of work areas should be performed prior to activities taking place. The use of leather boots and long pants will be required, since more than half of all bites are on the lower part of the leg. No attempts at killing snakes should be made; many people are bitten in such an attempt. Personnel will not put their hands in areas where they cannot be seen.

9.18.6 Flying Insects

Flying insects such as mosquitoes, wasps, hornets, and bees may be encountered while project activities occur. Mosquito bites can be effectively prevented by the use of insect repellants containing DEET. Please note that there are some concerns with the use of DEET on skin and associated potential adverse health effects. Treatment for insect bites and bee stings can be effected by the use of commercially prepared ointments. Personnel who are allergic to bee stings shall notify the SSHO prior to working on the project.

9.18.7 Spiders

Personnel will be alert to the potential for spider bites. Spiders sometimes establish residence in stored clothing and PPE. It is advisable for personnel to inspect clothing and PPE for spiders prior to donning. Immediate reporting and medical evaluation is necessary if personnel suspect being bitten by the Brown Recluse spider. If a spider bite is sustained, personnel shall report it to the SSHO.

9.19 Cranes and Hoists

Applicable Standards:

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OSHA 29 CFR 1926.1400-1501
USACE EM 385-1-1 Section 15 – Rigging, Section 16 Cranes and Hoisting Equipment
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USACE Crane inspection checklist must be used and completed. These checklists are located in Appendix D" The crane inspection checklists will be completed and submitted to USACE for approval prior to crane operations on-site.

The target goal of a crane safety program is <u>zero</u> crane accidents. To achieve the goal, the following safe work procedures must be implemented and enforced at the Site:

- Crane operators must be licensed through the State of New Jersey to operate a crane.
- Crane operators must be physically qualified to operate the equipment. Physical exams for operators are required every 2 years and any time a condition is observed that may impact the safe operation of a crane. Written proof, signed by a physician stating that the crane operator has had a physical examination and meets the medical requirements set forth below:
 - Vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses;
 - Normal depth perception and field of vision;
 - Ability to distinguish colors, regardless of position;
 - Adequate hearing, with or without a hearing aid, for the specific operation;

- Sufficient strength, endurance, agility, coordination, manual dexterity, and speed of reaction to meet the demands of the equipment operation;
- No tendencies to dizziness or similar undesirable characteristics; and
- Has a negative result for substance abuse test.
- All crane operators shall participate in a drug-testing program and have a negative result for substance abuse test. WorkCare, Inc. will facilitate this program at the Site.
- Crane operators are required to comply with crane manufacturer's specifications and limitations applicable to the operation of any and all cranes, derricks, and hoists.
- The use of electronic equipment for entertainment purposes while operating a crane is prohibited.
- Rated load limits and recommended operating speeds, special hazard warnings, or instructions must be posted on all equipment.
- Hand signals to crane and derrick operators must conform to the applicable ANSI standard for the type of crane being used.
- A competent person who is knowledgeable in proper crane setup and operation activities must inspect all machinery and equipment prior to each use, and during use, to ensure it is in safe operating condition.
- Any defective parts must be repaired or replaced before use.
- A **competent person** who is knowledgeable in crane inspection techniques must perform an annual inspection of the hoisting machinery and provide a copy of the dates and results of inspections for each hoisting machine and piece of equipment to the site superintendent.
- All moving parts or equipment (belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheel, etc.) must be guarded to prevent contact by employees.
- Accessible areas within the swing radius of the rotating superstructure of the crane must be barricaded to prevent an employee from being struck or crushed by the crane.
- Exhaust pipes must be guarded or insulated to prevent contact by employees.
- Windows in cabs must be of safety glass, or equivalent, that introduces no visible distortions.
- Where necessary, a ladder or steps must be provided to allow access to a cab roof.
- Platforms and walkways must have anti-skid surfaces.
- A fire extinguisher with a minimum rating of 10B:C must be installed in the cab or at the machinery housing. No part of a crane or load is permitted within 10 feet of electric power lines (see Table 5 for minimum clearance), except where electrical distribution and transmission lines have been de-energized and visibly grounded. A person will be designated to observe clearance of the equipment and provide timely warning to the crane operator.

• No employee is permitted to work beneath a suspended load.

As part of a crane safety program, site superintendents will develop a working knowledge of the client's requirements for operating construction cranes, derricks, or hoists on project property. Interview prospective crane operators prior to site employment to determine competence and qualifications and check the prospective crane operator's past experience with previous employers, if possible. The Superintendent or his designee will conduct daily inspections to observe compliance with established company and client crane and rigging procedures and immediately shut down any crane operations that jeopardize the safety of any jobsite personnel.

9.20 Demolition

Applicable Standards:

OSHA 20 CFR 1926.850 – 860 USACE EM 385-1-1 Section 23 – Demolition

Prior to starting demolition operations, an engineering survey must be performed by a **competent person** to determine the condition of the framing, floors, and walls. In some jurisdictions, the competent person must be a professional engineer. All electric, gas, water, steam, sewer, and other service lines must be shut off, capped, or otherwise controlled. If hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in pipes, tanks, or other equipment on the property, testing and purging must be performed to eliminate the hazard prior to demolition.

Employees should never enter any area that may be adversely affected by demolition operations unless they are needed to perform these operations. During demolition, a **competent person** must make continued inspections as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material.

10.0 SITE CONTROL MEASURES

This section outlines site control measures to be implemented to minimize potential exposure to and accidental spread of hazardous substances during remedial activities. Listed below are the work zones that will be established. The zone boundaries may be modified as necessary as new information becomes available.

10.1 Work Zones

The Site will be divided into Exclusion, Contamination Reduction, and Support Zones. It should be recognized that the Site control zones will be modified continually. A map showing the work zones will be posted in the Site office. Refer to the Temporary Facilities Plan (submitted under separate cover) for work zone locations. The SSHO will review the location of work zones at the daily safety briefing.

The SSHO and at least one person who has completed Supervisor's Training will be present at the Site whenever work is performed in the Exclusion Zone or Contamination Reduction Zone.

10.1.1 Exclusion Zone (EZ)

The Exclusion Zone is where there will be direct contact with the potentially contaminated material. PPE will be required in this zone. The SSHO will enforce these requirements. The level of PPE

required will be based on hazard, site condition and air monitoring performed. The outer boundary of the Exclusion Zone will be delineated. Modification to the size and boundary of the Exclusion Zone will be made in the field by the SSHO based on operations and wind direction. The Exclusion Zone may be subdivided into different areas of contamination and different levels of PPE may be assigned based upon the expected type and degree of hazard.

All activities in exclusion zone will be conducted using the "buddy system". This involves a buddy who is able to provide his or her partner with assistance, observe for signs of chemical or heat exposure, check integrity of PPE and go for help when needed.

10.1.2 Contamination Reduction Zone (CRZ)

The Contamination Reduction Zone is where workers and equipment will be decontaminated. This will minimize the spread of contaminants from the Exclusion Zone into clean areas. The Contamination Reduction Zone will consist of the area located in front of or next to the exclusion zone so that personnel or equipment exiting the Exclusion Zone can be decontaminated and doff the PPE. Emergency equipment to be located in this area will include eye wash stations, fire extinguishers, first aid kits and other appropriate equipment. The Contamination Reduction Zones or personal decontamination stations will be established adjacent to the Exclusion Zones. These stations will provide a means for prompt removal of potentially contaminated outer PPE at a location convenient to operations.

10.1.3 Support Zone

The Support Zone is considered to be uncontaminated. This area will be used as a storage area for operations equipment and where break and toilet and shower facilities will be located.

10.2 Site Entry and Exit Control Log

All site personnel on this project will undergo safety orientation by the SSHO prior to starting work at the site. This training will include general site safety rules, hazardous locations, personal protective equipment guidelines, and onsite emergency procedures. All site personnel will satisfy the following requirements before initiating work onsite within the Exclusion or Contamination Reduction Zones:

- Receive and pass a physical examination, including certification of ability to wear respiratory protection.
- Receive adequate hazardous waste training according to 29 CFR 1910.120 or 29 CFR 1926.65.
- Receive a briefing on all aspects of the APP.
- Are properly dressed, equipped, and trained in accordance with all personal protective guidelines.
- Are thoroughly trained regarding decontamination procedures.
- All personnel performing tasks when respiratory protection is needed will comply with the requirements of this plan

All personnel entering and exiting the Exclusion and Contamination Reduction Zones will sign in and out through the Support Zone. The log will indicate the date and time entering and exiting, the location entered, personal protective equipment utilized and decontamination procedures.

11.0 PERSONAL HYGIENE AND DECONTAMINATION

Decontamination (Decon) is the process of removing or neutralizing potentially harmful contaminants that have accumulated on personnel and equipment in order to reduce the spread of contamination outside the work area. Decontamination is critical to the safety and health of Site workers and it protects the community by minimizing the off-site migration of contaminants. One of the most important aspects of controlling contaminated material migration is the prevention of the spread of contamination. Good contamination prevention will minimize employee and public exposure.

All personnel and equipment leaving the Exclusion Zone must be decontaminated in the Contamination Reduction Zone prior to entering the Support Zone. The decontamination process is composed of a series of steps performed in a specific sequence. The basic concept is that more heavily contaminated items will be decontaminated and removed first, followed by decontamination and removal of inner, less contaminated items.

During remedial activities at the Site, all items taken into the Exclusion Zone must be considered contaminated and must be carefully inspected and/or decontaminated before leaving the Site. All contaminated vehicles, equipment and material will be cleaned and decontaminated to the satisfaction of the SSHO prior to leaving the Site. Decontamination procedures will be posted at every decontamination station throughout the project.

11.1 Personal Decontamination

Personnel exiting the Exclusion Zone during remedial activities at the Site will follow the procedure below.

As the worker leaves the Exclusion Zone, he places his equipment and tools in the Exclusion Zone or Contamination Reduction Zone. After the worker places his equipment and tools down, gross contamination will be removed from outer clothing and boots. Workers will then remove their outer boots and outer gloves and place them in plastic garbage bag-lined containers.

Once outer gloves are removed, workers will remove all outer garments and place them in plastic garbage bag lined containers. Once workers are fully decontaminated and all garments are removed, workers will remove their respirators (applicable to Level C) followed by removal of inner gloves. Used cartridges and inner gloves will be placed into plastic garbage bags.

The change trailer will be used by the on-site staff for short breaks during the workday. The trailer will have an area for changing, washbasins, and counters. This trailer is considered part of the Support Zone and cannot be entered from the Contamination Reduction Zone unless the individual has completed the outlined decontamination procedures. All equipment will be decontaminated before being brought into the trailer.

11.2 Respirator Decontamination

Respirators are to be decontaminated, cleaned and sanitized before reuse. Cartridges and/or filters must be replaced as needed and, as a minimum, changed daily. The respirators are then cleaned with cleaning and sanitizing solutions, wiped dry and placed into sanitary containers or bags and sealed closed. Before departing the change locker facility, respirators are placed into storage compartments for next day use.

11.3 Equipment Decontamination

Nearly all hardware (not consumable) is considered to be recoverable. As such, they will be decontaminated using the proper equipment, (i.e. brushes, sprayers, detergent and, if necessary, other appropriate solvents). Large heavy equipment will be decontaminated with pressure steam wash as required.

The decontamination area for vehicles and equipment leaving the Exclusion Zone will be located within the Contamination Reduction Zone. Equipment will be decontaminated in a manner that allows all water and dirt to flow back into the Exclusion Zone. Scrapers and brushes will be used to remove gross contamination prior to final decontamination. A pressure washer or water hose may be used for the final cleaning and decontamination of the equipment. Efforts will be made to minimize soil (even non-contaminated soil) from being tracked off-site. Dirt and mud will be removed from trucks and vehicles leaving the Site to the extent practicable.

11.4 Decontamination Log

A decontamination log will be maintained and will list the equipment name and model number, the equipment I.D. number, the activities the equipment was used for, the method of decontamination, amount of decontamination, date and time of decontamination and names of personnel doing the decontamination. This log will be maintained by the SSHO and included in the Safety and Health Report.

11.5 Decontamination Residue

Decontamination residue consists of disposable PPE (such as Tyvek, gloves, tape and cartridges) and settled solids. Decontamination residue will be drummed and stored in the Exclusion Zone until subsequent treatment or disposal.

11.6 Personal Hygiene and Sanitation

Hands and face will be thoroughly washed before eating, smoking, drinking, chewing gum or tobacco.

When possible, avoid contact with contaminated materials.

Support facilities such as wash facilities, eating areas, changing areas, and portable toilets will be located in the Support Zone. This area will remain "clean" and free of contamination.

An adequate supply of potable water will be provided to the employees working at the Site. Clearly labeled potable containers will be used to dispense drinking water. Containers will be cleaned at the beginning of each day. The containers will be equipped with taps to access the water. Clean disposable cups will be provided daily.

Portable toilet facilities will be provided on-site for employees and will be located in the Support Zone.

Eating, drinking, smoking, chewing gum or tobacco, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited during remedial activities except in designated eating or smoking areas outside the Exclusion and Contaminant Reduction Zones. Sevenson employees, subcontractor employees, and service personnel are required to thoroughly decontaminate themselves prior to entering the Support Zone.

12.0 EMERGENCY CONTINGENCY PLAN

12.1 General

This section describes the emergency response plan that will be implemented by Sevenson employees to handle emergencies. The nature of the project, the contaminants present and the activities planned for the site are such that there is little potential for an emergency, which would result in a significant release of hazardous substances, and in any way threaten the adjoining community. However, there is always the potential at any site for emergency situations to occur which threaten the on-site workers. Possible examples of emergency situations during remedial activities include equipment fires or contact of equipment with overhead power lines. In all of these cases, procedures will be implemented to minimize the possibility of an emergency situation. The procedures outlined below are designed to ensure that the workforce reacts quickly and appropriately to emergency situations, thereby protecting the health and well-being of the individual workers. It is expected that modifications may be necessary upon actual site set-up and conditions.

NOTE: In the event of a serious or life threatening emergency the primary consideration is the immediate health of the individual rather than routine contamination controls. Standard contamination control protocols shall not interfere with the prompt medical attention required of a seriously injured worker.

12.2 Pre-Emergency Planning

During the daily Site safety briefings, all employees will be informed of the location of this plan, the procedures outlined in this plan, and the communication systems and evacuation routes to be used during an emergency.

On a continual basis, individual personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

A coordination meeting with local emergency response agencies (fire, police, rescue and medical facility) will be conducted prior to work starting at the Site. The Site activities and potential hazards that may be encountered by responders will be reviewed during this meeting.

12.3 Personnel Responsibilities

All on-site employees have a role in mitigating an emergency incident. The Project Superintendent has primary responsibility for responding to and directing emergency response operations to correct emergency situations. This includes taking appropriate measures to ensure the safety of site personnel and the public. He is additionally responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed. The SSHO will assist and advise the Site Superintendent, and will direct any emergency medical responses.

The following is an outline of job titles and corresponding responsibilities during an emergency.

- The Site Superintendent directs emergency response activities and serves as liaison with the COR and subcontractors. In the event of an emergency the Superintendent will be the Incident Commander.
- The SSHO recommends that work be stopped if any operation threatens worker or public health or safety and advises the Project Manager of emergency procedures if necessary. Provides emergency

medical care on site. Notifies emergency services. The SSHO will assume the responsibility of Incident Commander if the Superintendent is off-site.

12.4 Evacuation Routes and Procedures

In the event of an emergency that necessitates an evacuation of the site, on-site personnel will be notified by hand-held or mobile two-way radios to leave the area by immediate emergency exit. An alternate method of communication will be the use of a portable air horn sounded in regularly spaced, repeated blasts.

During an evacuation, all non-emergency radio transmissions will cease. The SSHO, in conjunction with the Site Superintendent, will control the scene until the appropriate municipal and state agencies arrive and a site specific Incident Command System should be implemented. Since Site conditions, (i.e., wind direction, precipitation, and work location), change often, the SSHO will determine the appropriate evacuation procedures.

All personnel will assemble/muster at a predetermined assembly area. Access to the Site will be restricted to emergency personnel.

12.5 Emergency Decontamination Procedures

Decontamination of an injured or exposed worker will be performed if decontamination does not interfere with essential treatment. The objective is to successfully administer first aid without exposing rescue workers and the victim to contaminants. Project personnel will meet with the local hospital to discuss the possibility of having to treat injured personnel from the Site.

If the hazards are low and decontamination can be performed, then a wash, rinse and removal of protective clothing will be performed.

If the hazards are high and decontamination cannot be done, then the following procedures will be performed:

- Wrap the victim in blankets or plastic sheeting to reduce contamination of rescue workers or other personnel and equipment such as ambulances.
- Alert emergency and medical personnel to potential contamination. Emergency entry into the Exclusion Zone will be controlled by the SSHO. The SSHO will determine if the victim can be moved from the Exclusion Zone. If entrance into the Exclusion Zone is required, the SSHO will ensure that the emergency workers don the proper PPE.
- If required, arrange to have the SSHO or his designee, who is familiar with the Site to accompany the victim to the hospital.

12.6 Medical Treatment/First Aid

The SSHO will be trained in CPR and First Aid and shall have first aid kits for use in a medical emergency. First Aid Kits will be located in the main support area, Contamination Reduction Zones, and at any isolated work activity locations. Eyewash stations will be available at the Contamination Reduction Zone. Eyewash stations will be of the pressurized, 15-minute discharge type. Community emergency services (EMS, Fire, and Police) will be notified immediately if their resources are needed at the Site.

If necessary, the injured or sick person(s) will be taken to JFK Medical Center—Please refer to *Figure 1*, "*Route to Hospital Map*", for directions to the area hospital from the project site. The route to the area hospital will be posted and easily visible on the job site safety bulletin board and in roadway Site vehicles.

12.7 Emergency Alarms/Notifications and Procedures

When any emergency occurs on-site the SSHO and Project Superintendent will be notified immediately. The Project Superintendent or the SSHO will notify the COR. Please refer to the *Table 9* – "*Emergency Telephone Numbers*" for emergency telephone numbers. Emergency telephone numbers will be posted and easily visible on the job site safety bulletin board and in roadway Site vehicles.

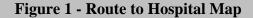
To notify any site workers of an emergency, workers can be signaled by way of hand held or mobile two-way radios or as a backup, the use of an emergency alarm (portable air horn). Any audible pattern of blasts from a portable air horn becomes difficult to interpret due to distance and the inhibitory effects of a respirator.

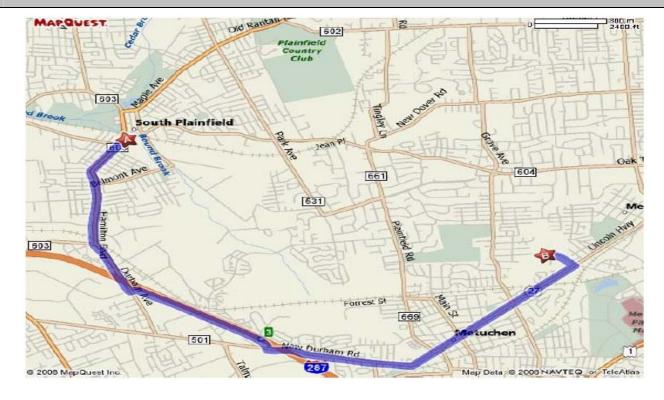
All emergency communications will flow through the radio network. Outside emergency services will be notified, as necessary. The Site evacuation alarm consists of one long blast on a horn, every 10 seconds. Any time the alarm system is activated, Site personnel will be notified immediately. Personnel will secure all equipment, extinguish any nearby ignition source, and prepare for emergency response activities. This alarm will also be used to alert personnel of a sudden release of hazardous materials.

The observer of the emergency condition will brief the responding personnel to the nature and location of the incident. When they have assessed the situation, a decision whether or not to implement these procedures will be made. If these Emergency Contingency Procedures are not implemented, the "All Clear" will be given verbally by supervisory personnel. The "All Clear" will be used to indicate a return to normal (non-emergency) conditions following emergency response activities. The alarm signals will be prominently posted at the site.

12.8 Emergency Telephone Numbers

Table 7 lists the emergency medical, fire, law enforcement, and other municipality, agency, and support telephone numbers to be used for this facility. **Table 7 will be posted in the job trailers and site vehicles.** In the event of telephone failure, personnel will be instructed to use the telephone in the guard trailer or the nearest public telephone.





Direction to John F. Kennedy Medical Center – 732-321-7070 Depart Site on Hamilton Boulevard (South-West)

Bear LEFT (South) onto CR-603 (Hamilton Boulevard)
Turn RIGHT to stay on CR-603 (Hamilton Boulevard)
Stay STRAIGHT to go onto Durham Ave
Take Ramp (LEFT) onto I-287 South
Take Exit 3 CR-501 E toward Metuchen
Turn LEFT onto New Durham Rd/CR-501
Continue to follow CR-501
Stay Straight to go onto NJ-27/Middlesex Ave

Continue to follow NJ-27

Turn LEFT onto James Street
Arrive at JFK Medical Center (hospital), Edison, New Jersey

Distance: 6.53 Miles / Time: 16 Minutes

Table 7 Emergency Telephone List				
South Plainfield Police Department	908-226-7678; 911			
South Plainfield Fire Department Chief	908-769-9817; 911			
Middlesex County HAZMAT Team	732-727-6626; 911			
Sewage	856-456-0169			
Hospital – JFK Medical Center	732-321-7070			
Dr. Greaney – Occupational Specialist (Work Care)	714-456-2154			
Sevenson Environmental Services, Inc.				
Richard Elia – Program Manager V.P. Sevenson	716-284-0431			
Paul J. Hitcho, PhD, CIH - Safety and Health Manager	716-284-0431(work)/716-998-9797(cell)			
Alfred LaGreca - Corporate Project Manager	716-284-0431(work)/716-807-4147(cell)			
Kim Lickfield – Project Manager	716-284-0431(work) / 908-769-5301 (site)			
Perry Novak - Project Superintendent	908-769-5301			
Eric Tschudi-Safety and Health Officer	908-769-5301(work) / 772-475-6821 (cell)			
TBD- Alternate Safety and Health Officer	908-796-5301(work) / TBD (cell)			
William Zambrana- Project QA/QC officer	908-769-5301			
US Army Corps of Engineers				
Neal Kolb- Resident Engineer	732-846-5830			
Patrick Nejand - Contracting Officer Representative	908-769-1601			
Other Numbers				
New Jersey One Call (Dig Safely)	800-272-1000			
NJDEP 24-Hour Hot Line	877-WARNDEP (877-927-6337)			
National Response Center	800-424-8802			
CHEMTREC	800-424-9300			

12.9 Implementation of the Plan

There is a logical sequence of steps to follow in responding to emergencies, which should be followed by Site personnel. This sequence involves identifying the emergency, investigating the extent of the emergency, deciding on the proper initial course of action, taking corrective action to rectify the situation, and following up with a post-emergency investigation.

Equipment breakdowns, power failures, injuries, and natural disasters are usually rather dramatic and will capture the individual's attention immediately upon occurrence. In other cases, the individual may have prior warning of impending emergencies through weather reports in the case of natural disasters and trends in equipment performance in the case of some breakdowns. Some emergency situations exist long before the operator is aware that an emergency exists. These cases may produce situations, which then become immediate and obvious. For example, unattended equipment may have minor breakdowns which go unnoticed; further operation thus leading to complete breakdown of the equipment resulting in possible injury to the unwary bystander.

In the event of a fire, explosion, accidental material release, or any other emergency, response activities will be initiated following the evaluation of the event. An assessment of the situation will be performed by the SSHO immediately upon notification. The Superintendent/SSHO is authorized to commit resources to the extent detailed in this plan. If it is determined that an emergency situation exists, he will then implement the appropriate emergency response activities.

In the event that a medical emergency or accident occurs in the Exclusion Zone, all personnel responding to the emergency should be outfitted in the PPE appropriate for the situation. As a general rule, personnel should not enter the Exclusion Zone without donning the minimal level of PPE required. In the event that a worker is overcome or disabled for an unknown reason, the SSHO must make a determination as to the level of respiratory protection, which is appropriate. If the SSHO is not readily available, supplied air respirators will be required for rescue.

12.9.1 Conditions for Implementation

The contingency plan will be activated by the Superintendent/SSHO immediately in the event of a fire or explosion, or emissions of toxic chemicals in excess of limits set forth by Federal, State, and local agencies. In the event of a spill or material release, it will be up to the Superintendent/SSHO to make a determination as to when emergency conditions exist, as opposed to routine maintenance of the Site. His determination will depend upon the location of the spill, the size of the spill, weather conditions and the proximity of the release to workers, the community and environmental receptors.

Once it becomes apparent that an emergency situation exists or that a disaster is impending, the Project Superintendent or SSHO should immediately be notified and an immediate assessment conducted. Assessment of the emergency should include assessing the severity of the situation and collecting enough information to make an initial action decision.

Assessing the emergency should include identifying injured persons (if any), damage to buildings and equipment, noting potential impending damage if corrective action is not taken immediately, and itemizing resources required to correct the situation.

12.9.1.1 Fire or Explosion

Although the potential for fire or explosion is minimal, sources of risk do exist. These sources include welding gases, gasoline for portable equipment, diesel fuel for the heavy equipment and combustible debris. In the event of an explosion, possible emergency conditions would exist. Unless extinguished immediately, a fire or explosion will trigger implementation of these procedures.

12.9.1.2 Material Spills

Material Spills could occur during truck loading and from vehicle accidents. Additionally, equipment fueling operations could produce spills. Ultimately, a spill could contaminate surface water or cause a release of vapors to the air. A spill of fuel could also ignite. A small spill should be cleaned up immediately, but should not trigger activation of these procedures. Should an onsite spill occur, the immediate response will include closing off the source of the spill, if possible, application of the sorbent material or sand bagging, and street sweeping, as appropriate. Any spill that results in a discharge to offsite surface water will be contained with sorbent booms as needed. All spills will be investigated, and a written report will be provided to the regulatory agencies in accordance with applicable regulations.

12.9.1.3 Severe Weather

In the event of severe weather, the Site Superintendent and/or the SSHO have the authority to stop operations and direct evacuation procedures, if conditions warrant. All equipment will be secured and grounded. After the storm, a visual inspection will be performed by the Superintendent and/or the SSHO to check for damage and hazards. These will be performed before any work is resumed. If

damage or hazards are noted, the designated or other Sevenson personnel will evaluate the conditions and implement corrective actions to repair the damage or eliminate the hazard. These actions will begin as soon as possible and will take precedence over other Site activities.

Severe weather will be monitored using a weather station that is part of the National Oceanic and Atmospheric Administration (NOAA) at the Site via the Internet.

A Spectrum Electronics Thunderbolt¹ lightning detection instrument (or equivalent) will monitor for weather conditions that may cause lightning at the Site. This instrument has the capability to detect conditions that may produce lightning from as far as 75 miles away. The instrument will continually update the distance of the storm from the Site and will provide a warning (settings include; when the storm is local (within 8 miles) from the Site as well as the time (in minutes) until the storm has cleared the Site.

The following controls will be implemented for severe weather:

- When the storm is within 20 miles of the Site all Site personnel will be notified that severe weather is approaching. Any work being performed above ground level will be stopped. Employees will take precautions to secure items that could become airborne from high winds at this time.
- When the storm becomes localized (within 8 miles of the Site) all work will be stopped, equipment secured, and workers will make their way to a designated shelter area.
- Work will not resume until the storm has cleared the Site for a minimum of 30 minutes. The storm will not be considered cleared from the site until 30 minutes since the last flash of lightning or clap of thunder.

The SSHO with the approval by the Contracting Officer's Representative will designate acceptable shelter areas and will post a map of these areas on the Job Site Bulletin Board.

12.9.2 Initial Action

Once the extent of the emergency is known, the Superintendent and the SSHO will make an immediate decision as to what initial steps should be taken to remedy the emergency situation. This first action, in the case of large-scale emergencies, usually consists of notifying responsible authorities and/or calling for the necessary assistance in order of priority.

The individual(s) should not unduly endanger him or herself or others by attempting tasks for which the proper equipment is not available or with which he or she is unfamiliar. In all cases, if in doubt, wait until qualified help arrives before taking action.

12.9.3 Corrective Action

When help arrives, the site superintendent/SSHO should immediately inform those called of the pertinent details of the situation. Corrective action should be continued until the situation is either under control or completely rectified. If corrective actions will take considerable time, a long-term effort to complete the task should be developed.

¹ http://www.spectrumthunderbolt.com/

12.9.4 Follow-through

After the situation is corrected, the cause of the emergency event is to be determined and review of the corrective actions taken, etc. In the case of equipment failure, if negligence was not a factor, then revising maintenance procedures would be the most likely first preventive step. For natural disasters that cannot be prevented from recurring, the procedures followed in dealing with them can be reviewed to develop more effective action plans. The entire event, along with all of the responses, will be thoroughly documented for review by management and project supervisory personnel.

12.10 Spill Response and Control Plan

The purpose of this section is to define practices and procedures for the prevention, containment, and cleanup of accidental discharges of hazardous substances during the project. These substances include both the contaminated material managed as a result of the remedial project, such as contaminated soils and decontamination liquids, and construction materials typically found on any construction site, such as lubricating fluids, diesel fuel, gasoline, etc.

Spill prevention applies to all types of spills and can be described as the first and simplest approach to spill control. Human error is a major contributing factor to spills and releases. An awareness of spill consequences, preventive measures, and countermeasures will greatly reduce spill occurrences. A sound prevention program includes careful work practices, constant inspection, and immediate notification and correction of deficiencies. In the event that a spill does occur, proper containment and cleanup procedures must then be followed in order to reduce the effect of the spill.

12.10.1 Prevention

Prevention of unnecessary spills is of first priority. Prevention measures include:

- Operators and drivers will exercise extreme caution when transporting material around the site.
- When removing hoses from machines an appropriate and adequate supply of absorbents will be on hand. A supply of the following absorbents will be kept on-site, oil sorbent booms, rolls and pillows, universal towels and sheets, and vermiculite.
- Hoses will be capped when not connected to their appropriate fitting.
- All containers will be inspected daily for decay. No open container will be exposed to rainfall, snowfall, etc. without being emptied and cleaned of residue.
- All equipment will be inspected for leaks before and after service.
- Storage of material such as fuels, oils, and solvents on-site will be limited to the minimum required. All fluids will be stored in individual fluid containers appropriate and approved for the material. Most of the individual fluids containers will be further secured by storage in large, locked tool and equipment storage containers. Drums or other containers too large to be stored in containers will be stored raised off the ground on a liner and covered by plastic.

12.10.2 Reporting

All spills will be reported immediately to appropriate field and office management personnel. The sequence of reporting will be as follows:

- Notification by workers to the Project Superintendent or SSHO.
- The Project Superintendent or SSHO will immediately notify the COR regardless of the size of the spill.
- Sevenson and the COR will jointly determine the nature of the spill, its size, direction of travel, if anyone has been injured as a result of the spill and whether it requires immediate notification to regulatory agencies.
- The COR will have primary responsibility for notifying the regulatory agencies. Sevenson will have follow-up responsibility to verify that the notification is made in a timely manner. A full list of emergency contacts and telephone numbers is included this plan. This list includes Sevenson personnel, as well as federal, state and local authorities. This list will be posted in all trailers on-site.
- The NJDEP will be notified by COR or the SSHO of all spills (regardless of their size); notification will be made to the NJDEP Hot Line at 877-927-6337.

Upon notification of a spill, all project activity will be immediately suspended and all necessary equipment and personnel will be diverted to spill control and containment. In the event of a spill, and regardless of the size, a Spill Incident Report will be submitted to the COR within 48 hours of the incident.

12.10.3 Spill Response Equipment

Given the nature of this project, all the necessary equipment and personnel necessary to deal with a release of hazardous substances will be available on site. In addition to the heavy equipment and personal protective equipment, which is critical to spill control, Sevenson will have on hand an ample amount of sorbent materials, UN1A2 open top drums and over packs.

12.10.4 Confinement and Containment

Prior to entering a spill area, all workers must be protected from any adverse effects of the spilled material. No one will enter any spill area alone. The SSHO will determine the level of protection required for response activities. To the extent practicable, the area will immediately be cordoned off and, if appropriate, Exclusion, Contamination Reduction, and Support Zones will be established.

The decision to use confinement techniques such as diversion, diking and retention, are generally based on time, personnel, equipment, and supplies. As mentioned above, all necessary resources will be available on-site at all times. To the extent the nature of the material is known, the decision should be made based upon a review of the harmful effects of the material. In the event of a large migrating spill, an unlikely circumstance, diversion techniques, such as placing a soil wall or absorbent boom ahead of the spill, will be implemented first. Subsequently, diking techniques, such as using material such as sand covered with liner material (PVC, hypalon) should be implemented.

12.10.5 Cleanup

Once a spill has been contained and the source of the spill corrected and controlled, cleanup can begin. Spill cleanup may proceed at the same time as containment. Supervisory personnel will determine the appropriate cleanup methods. The SSHO will determine the appropriate level of protection depending upon the nature of the material.

- The first action will be to absorb free liquids with absorbent pads, booms, pillows, or clay. The absorbent material will be placed in drums and moved to an appropriate storage location. Subsequent to the removal of free liquids, soil believed to be contaminated will be excavated and containerized in drums or stockpiled on poly sheeting and covered for further testing.
- Dry spills, while posing less of a risk of migration, will still require appropriate and immediate action. The nature of the spilled material will be ascertained. The spilled material will be recovered for reuse if appropriate. Material that cannot be recovered, and residual contaminated soil will be shoveled into 55-gallon drums, placed in the drum storage area, and sampled and analyzed for waste characterization and disposal.
- Once containerized, Sevenson will provide the appropriate sampling and analysis for waste characterization and disposal facility acceptance. Results of waste characterization analysis, waste profiles, and manifests will be provided to the COR for review.
- All spilled material and visually contaminated soil will be excavated and containerized in the initial spill response. If there appears to be a possibility that contaminants have migrated into the surrounding soil, post-remedial sampling will be initiated. Soil samples will be taken from the areas of suspected contamination and analyzed for the compounds, which were released.

Personnel Decontamination - In general, all spill response operations will be performed in accordance with the provisions of the approved APP/SSHP.

12.11 Report/Review

A written report will be made within 24 hours of incident resolution. The COR will be provided with a copy as soon as possible. In addition, all key personnel will have a meeting within 48 hours of the incident to discuss and critique all of the aspects of the emergency according to new Site conditions and lessons learned

13.0 INSPECTION AND REPORTING

13.1 Safety and Health Inspections

Safety and Health inspections will be conducted to discover, through specific, methodical auditing, checking, or inspection procedures, conditions and work practice that lead to job accidents and illnesses.

The Health and Safety Manager shall be responsible for ensuring that inspections are conducted at the frequency stated, reviewing the Daily Safety and Inspection Logs for completeness, thoroughness, and trends; performing quarterly project inspections; and training site personnel on proper inspection techniques. The SSHO shall be responsible for ensuring that daily inspections are conducted, reviewing the inspections findings and corrective actions for applicability and thoroughness, and providing the site management personnel with a summary of inspection findings each quarter.

The SSHO will develop a safety report based on the deficient inspection items noted during the inspection and conveying the deficiencies to the CQCSM via a Non-compliance Identification / Corrective Action Report. The CQCSM will enter the deficiencies in a master deficiency-tracking log. The CQCSM and the SSHO will discuses the existence of the deficiency with the appropriate work force individual(s) responsible for its correction. A corrective plan of action is developed and implemented following USACE approval, if needed. Deficiencies are tracked in accordance with the Quality Control Plan.

13.2 Daily Safety and Inspections Log

The SSHO will insure that all aspects of this Plan are complied with on a daily basis. Only one warning will be given to individuals not complying with the APP/SSHP. The SSHO has the authority to stop the work and ban any individual from the Site. If deficiencies are noted, they will be recorded on the Daily Safety and Inspection Log and will be corrected immediately. The Daily Safety and Inspection Log will be attached to the Daily Quality Control Report. The Daily Safety and Inspection Log will include the date, work area, employees present at the work area, PPE and work equipment in each area, specific safety and health issues, and notes and the signature of the preparer.

13.3 Certification of Worker/Visitor Acknowledgment

A Certification of Worker/Visitor Acknowledgment will be submitted to the Contracting Officer prior to initial entry onto the Site. The certification/acknowledgment will include both formal, field and site-specific training received, personal protective equipment supplied and trained in use, and medical certification. Certificates and Medical certification will be kept on file at the site.

13.4 Incident Reports

Incident reporting will ensure an immediate report on all incident/accidents to the COR immediately and provide an effective follow-up for corrective action in order to eliminate unsafe practices and unsafe conditions. An **Incident/Accident Form** must be completed immediately that same day. This report is utilized in the event of injuries, off-site releases, utility breaks, or accidents. Immediately following the incident/accident, the Site Superintendent and the SSHO will initiate an Incident/Accident Investigation. The Accident Report will be completed on ENG Form 3394 and submitted to the Contracting Officer's Representative within 24 hours from the day of the incident. Report revisions will be submitted as required.

"Near misses" will be documented by the SSHO and discussed at the morning safety briefings to educate the work force to potentially hazardous operations or practices.

Copies of Sevenson's Site OSHA 300 Log that summarize recordable injuries and lost-time accidents will be submitted to the COR monthly via RMS.

13.5 Daily Air Monitoring Report

The Daily Air Monitoring Report will be prepared by the SSHO. The Report will include all air monitoring data collected including real-time monitoring, personal monitoring within the Exclusion Zone, and perimeter monitoring.

13.6 Weekly Safety Meeting/Daily Tool Box Talks

As part of Sevenson's Corporate Health and Safety Program, a Weekly Safety Meeting is conducted on Monday mornings in conjunction with Daily Toolbox Talks. This safety meeting outlines current industry safety issues and allows for discussion of job-specific issues. In addition, a daily site briefing will be held to discuss current work activities and hazards for the day along with the air monitoring results from the previous day. The SSHO/Superintendent will conduct Daily Tool Box Talks and Weekly Safety Meetings with ALL on-site.

In addition to the daily toolbox talks and the weekly safety meeting, Sevenson will conduct monthly project management safety meetings. All site management, including sub-contractor personnel, are required to attend. Topics of discussion will include hazards identified and abated during the previous month, any outstanding action, new tasks to be performed, site concerns etc. The SSHO

will submit a synopsis of each meeting including topics covered, safety-related concerns, action items to be addressed, status of previous items, and a signed attendance list.

13.7 Monthly Exposure Report

A Monthly Exposure Report will be prepared by the SSHO and submitted to the COR. This report will include a compilation of man-hours worked each month for the project (both Sevenson and subcontractors), the number of accidents, severity, class of accident, and lost time for each month.

13.8 Safety and Health Phase-Out Report

The Safety and Health Phase-Out Report will be submitted within 10 days following completion of the work. The following information will be included:

- Summary of the overall performance of safety and health (accidents or incidents including near misses, unusual events, lessons learned, etc.).
- Final decontamination documentation, including procedures and techniques used to decontaminate equipment, vehicles, and on site.
- Summary of exposure monitoring and air sampling accomplished during the project.
- Signatures of the Safety and Health Manager and SSHO

Appendix C

Chemical Information Sheets



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CHEMINFO
         * Canadian Centre for Occupational Health and Safety
         * * * * * * * * * * * * * * * Issue : 2002-3 (August, 2002) *
              *** SECTION 1. CHEMICAL IDENTIFICATION ***
CHEMINFO RECORD NUMBER
                               : 3356
CCOHS CHEMICAL NAME
                                : Chlorodiphenyl (42% chlorine)
SYNONYMS:
   * Aroclor - 1242
   * PCB - 1242
   * PCB 1242
   * Polychlorinated biphenyl 1242
CAS REGISTRY NUMBER
                                : 53469-21-9
UN/NA NUMBER(S)
                                : 2315
RTECS NUMBER(S)
                                : TQ1356000
EU EINECS/ELINCS NUMBER
                                : 215-648-1
                                : Halogenated aromatic hydrocarbon /
CHEMICAL FAMILY
                                  halogenated biphenyl / halobiphenyl /
                                  chlorobiphenyl / monochlorobiphenyl
MOLECULAR FORMULA
                                : C12-H7-Cl3 (approximately)
  STATUS:
  This CHEMINFO record for this chemical is not complete. It only
   contains readily available information at this time.
                       *** SECTION 2. DESCRIPTION ***
APPEARANCE AND ODOUR :
   Colourless to light-coloured viscous liquid with a mild hydrocarbon
   odour (1)
ODOUR THRESHOLD :
  Not available
                 *** SECTION 3. HAZARDS IDENTIFICATION ***
                        ** POTENTIAL HEALTH EFFECTS **
CARCINOGENICITY:
  Overall IARC evaluation of carcinogenic risk: Group 2A (probably
   carcinogenic to humans). NTP has listed other polychlorinated biphenyls
   as substances which may reasonably be anticipated to be carcinogens.(5)
   Consult NTP report for further information.
                 *** SECTION 5. FIRE FIGHTING MEASURES ***
FLASH POINT :
  176-180 deg C (349-356 deg F) (open cup) (2)
LOWER FLAMMABLE (EXPLOSIVE) LIMIT (LFL/LEL) :
  Not available
UPPER FLAMMABLE (EXPLOSIVE) LIMIT (UFL/UEL) :
  Not available
AUTOIGNITION (IGNITION) TEMPERATURE :
  Not available
COMBUSTION AND THERMAL DECOMPOSITION PRODUCTS :
   Exposure in a fire results in the formation of a black soot containing
   PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins.
FIRE HAZARD SUMMARY:
  During a fire, toxic PCBs, polychlorinated dibenzofurans and chlorinated
  dibenzo-p-dioxins may be generated.
EXTINGUISHING MEDIA :
```

Dry chemical, carbon dioxide, water spray or foam (2)

NOTE: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. This general information can be used to help develop specific control measures.

Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations.

SAMPLING AND ANALYSIS :

NIOSH METHOD 5503 - NIOSH Manual of Analytical Methods. 4th ed. Vol. 3. Partially evaluated method. Collection on glass fibre membrane filter, and Florisil sorbent tube. Desorption with hexane. Analysis by gas chromatography using electron capture detector (ECD). Estimated detection limited: 0.03 ug.

Use appropriate instrumentation and sampling strategy (location, timing, duration, frequency, and number of samples). Interpretation of the sampling results is related to these variables and the analytical method. Sampling should be carried out by trained personnel.

PERSONAL PROTECTIVE EQUIPMENT :

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protection equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills or fire.

If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Refer to the CSA Standard Z94.4-93, "Selection, Care, and Use of Respirators", available from the Canadian Standards Association, Rexdale, Ontario, M9W 1R3.

RESPIRATORY PROTECTION GUIDELINES :

NIOSH RECOMMENDATIONS FOR CHLORODIPHENYL (42% CHLORINE) CONCENTRATIONS IN AIR (1):

AT CONCENTRATIONS ABOVE THE NIOSH REL, OR WHERE THERE IS NO REL, AT ANY DETECTABLE CONCENTRATION: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

ESCAPE: Gas mask with organic vapour canister and high-efficiency particulate filter; or escape-type SCBA.

NOTE: The NIOSH Recommended Exposure Limit (REL) for chlorodiphenyl (42% chlorine) is 0.001 mg/m3 (time-weighted average concentration).

NOTE: NIOSH has classified this material as a potential occupational carcinogen, according to specific NIOSH criteria. This classification is reflected in these recommendations for respiratory protection, which specify that only the most reliable and protective respirators be worn. The requirements in Canadian jurisdictions may vary.

The respirator use limitations specified by the approving agency and the manufacturer must be observed.

Recommendations apply only to NIOSH approved respirators.

ABBREVIATIONS: SAR = supplied-air respirator; SCBA = self-contained breathing apparatus; IDLH = immediately dangerous to life or health. RESISTANCE OF MATERIALS FOR PROTECTIVE CLOTHING:

Guidelines for polychlorinated biphenyls (PCB) (4):

RECOMMENDED (resistance to breakthrough longer than 8 hours): butyl rubber, neoprene, Teflon(TM), Viton(TM), Saranex(TM), Barricade(TM), Responder(TM).

RECOMMENDED (resistance to breakthrough longer than 4 hours): 4H(TM)(polyethylene/ethylene vinyl alcohol).

CAUTION, use for short periods only (resistance to breakthrough within 1 to 4 hours): nitrile rubber.

NOT RECOMMENDED for use (resistance to breakthrough less than 1 hour): natural rubber, polyethylene.

This material is a recognized skin absorption hazard (ACGIH or OSHA). Recommendations are NOT valid for very thin natural rubber, neoprene, nitrile and pvc gloves (0.3 mm or less).

Recommendations are valid for permeation rates reaching 0.1 ug/cm2/min or 1 mg/m2/min and over. Resistance of specific materials can vary from product to product. Breakthrough times are obtained under conditions of continuous contact, generally at room temperature. Evaluate resistance under conditions of use and maintain clothing carefully.

** EXPOSURE GUIDELINES **

* THRESHOLD LIMIT VALUES (TLVs) / AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) / 2002 *

TIME-WEIGHTED AVERAGE (TLV-TWA) : 1 mg/m3, skin TLV BASIS - CRITICAL EFFECT(S) : Irritation

Chloracne (acne caused by chlorine compound

Liver

TLV COMMENTS:

"SKIN" NOTATION: Contact with skin, eyes, and mucous membranes can contribute to the overall exposure and may invalidate the TLV. Consider measures to prevent absorption by these routes.

NOTE: In many jurisdictions, exposure limits are similar to the ACGIH TLVs. Since the manner in which exposure limits are established, interpreted, and implemented can vary, obtain detailed information from the appropriate government agency in each jurisdiction.

* PERMISSIBLE EXPOSURE LIMITS (PELS) / FINAL RULE LIMITS / US OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) *

TIME-WEIGHTED AVERAGE (PEL-TWA) : 1 mg/m3, skin FINAL RULE LIMIT PEL COMMENTS :

"SKIN" DESIGNATION: Skin contact can contribute to the overall exposure to this chemical. Prevent or reduce skin absorption through the use of gloves, coveralls, goggles or other appropriate personal protective equipment, engineering controls or work practices.

NOTE: The OSHA PEL Final Rule Limits are currently non-enforceable due to a court decision. The OSHA PEL Transitional Limits are now in force.

* PERMISSIBLE EXPOSURE LIMITS (PELs) / TRANSITIONAL LIMITS / US OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) *

TIME-WEIGHTED AVERAGE (PEL-TWA) : 1 mg/m3, skin

TRANSITIONAL LIMIT PEL COMMENTS :

"SKIN" DESIGNATION: Skin contact can contribute to the overall exposure to this chemical. Prevent or reduce skin absorption through the use of gloves, coveralls, goggles or other appropriate personal protective equipment, engineering controls or work practices.

*** SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES ***

MOLECULAR WEIGHT : 258 (approximately)
CONVERSION FACTOR :

1 ppm = 10.53 mg/m3; 1 mg/m3 = 0.095 ppm at 25 deg C (calculated) MELTING POINT : -19 deg C (-2 deg F) (1)

BOILING POINT : 325-366 deg C (617-691 deg F) (1,2)

RELATIVE DENSITY (SPECIFIC GRAVITY) :

1.31 at 25 deg C (water=1) (1)

SOLUBILITY IN WATER:

Slightly soluble; 0.10 mg/100 mL at 24 deg C (3)

SOLUBILITY IN OTHER LIQUIDS :

Not available

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT) :

Log P(oct) = 4.11 (2)

pH VALUE : Not available VAPOUR DENSITY : 8.9 (air=1)

VAPOUR PRESSURE : $1.33 \times 10(-4)$ kPa (0.001 mmHg) at 20 deg C (SATURATION VAPOUR CONCENTRATION : 1.3 ppm (0.0001%) at 20 deg C (calculated)

EVAPORATION RATE : Not available CRITICAL TEMPERATURE : Not available

*** SECTION 10. STABILITY AND REACTIVITY ***

STABILITY:

Normally stable

HAZARDOUS POLYMERIZATION :

Does not occur CONDITIONS TO AVOID:

Temperatures above 176-180 deg C

*** SECTION 12. ECOLOGICAL INFORMATION ***

NOTE: Inclusion of Ecological Information on an MSDS is optional under the US Hazard Communication Standard and the Canadian Controlled Products Regulations (WHMIS). In other jurisdictions, inclusion of Ecological Information may be a requirement. For specific requirements, contact the relevant regulatory authorities in the jurisdiction where the MSDS is intended to be used.

The American National Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation (ANSI 2400.1-1998) provides advice on data that could be included in this section, as well as ecotoxicological tests and issues.

Databases in CCOHS's CD-ROM and Web collection which contain useful Ecological Information include CESARS, HSDB(R) (Hazardous Substances Data Bank) and CHRIS (Chemical Hazards Response Information System).

*** SECTION 14. TRANSPORT INFORMATION ***

** CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG) SHIPPING INFORMATION **

SHIPPING NAME AND DESCRIPTION: ARTICLES CONTAINING POLYCHLORINATED BIPHENYLS (PCB) regulated only when the concentration is more than 50 ppm by mass; or

POLYCHLORINATED BIPHENYLS (PCB) regulated only when the concentration is more than 50 ppm by mass

UN NUMBER: UN2315

CLASS: 9

PACKING GROUP/RISK GROUP: II

SPECIAL PROVISIONS: ---

PASSENGER CARRYING ROAD/RAIL LIMIT: 100 kg or L

MARINE POLLUTANT: Severe Pollutant

NOTE: This information incorporates the Transportation of Dangerous Goods Regulations SOR/2001-286, effective August 1, 2002.

** US DEPARTMENT OF TRANSPORT (DOT) HAZARDOUS MATERIALS SHIPPING INFORMATION (49 CFR) **

HAZARDOUS MATERIAL DESCRIPTION AND PROPER SHIPPING NAME: Polychlorinated biphenyls

HAZARD CLASS OR DIVISION: 9
IDENTIFICATION NUMBER: UN2315

PACKING GROUP: II

NOTE: This information was taken from the US Code of Federal Regulations Title 49 - Transportation and is effective October 1, 1997.

*** SECTION 15. REGULATORY INFORMATION ***

** CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) **

WHMIS INGREDIENT DISCLOSURE LIST :

Included for disclosure at 0.1% or greater

** EUROPEAN UNION (EU)
CLASSIFICATION AND LABELLING INFORMATION **

EU CLASSIFICATION :

Danger of cumulative effects; Dangerous for the Environment. [R:33;N] EU RISK PHRASES:

Danger of cumulative effects. Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. [R:33-50/53] EU SAFETY PHRASES:

Keep out of reach of children.* This material and its container must be disposed of in a safe way.

This material and/or its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheet. [S:(2-)*35-60-61]

*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only.

The product label must indicate if the substance is a specific isomer or a mixture of isomers.

EU COMMENTS :

CONCENTRATION GREATER THAN OR EQUAL TO 0.005%: Harmful. Danger of cumulative effects. [Xn;R:33]

*** SECTION 16. OTHER INFORMATION ***

SELECTED BIBLIOGRAPHY:

- (1) NIOSH pocket guide to chemical hazards. NIOSH, June 1994. p. 64
- (2) HSDB record for Aroclor 1242. Last updated 9501
- (3) Verschueren, K. Handbook of environmental data on organic chemicals. 2nd ed. Van Nostrand Reinhold, 1983. p. 216
- (4) Forsberg, K., et al. Quick selection guide to chemical protective clothing. 3rd ed. Van Nostrand Reinhold, 1997
- (5) Eighth Report on Carcinogens, 1998 Summary. U.S. Department of Health and Human Services, National Toxicology Program, 1998

Information on chemicals reviewed in the CHEMINFO database is drawn from a number of publicly available sources. A list of general references used to compile CHEMINFO records is available in the database Help.

REVIEW/PREPARATION DATE :

1995-12-27

REVISION INDICATORS :

US transport; 1998-03-01

Resistance of materials; 1998-06-01

TLV comments; 1998-08-01 Bibliography; 1999-02-01 Carcinogenicity; 1999-02-01



Appendix D

Safety and Health Forms



Job No	
Job Address	-
	-



Report of Accident, Injury, or Illness
Instructions: Please print. Fill in all blanks. When completed, return this form to Sharon Lee at the main office. Name _____ Sex: ____ Age: _____ Social Security Number ______ Birth Date: _____ Address Phone Number Marital Status: ☐ Single; ☐ Married; ☐ Separated; ☐ Divorced; ☐ Widowed # of Dependents _____ Date of Accident _____ Time ____ AM/PM Date Employee notified employer: ______ Who was notified: _____ **Employment Start Date:** Wage Rate: Occupation: **Average Hours Worked:** Average Days Per Week: **Date Last Worked:** Time Shift Began: Was worker paid for day of injury? Did salary continue? Name of Witness: Describe how the accident happened: What was employee doing when injured? Describe the injury in detail and indicate part of body affected: Name of object or substance that directly injured the employee: Date & Time medical attention was sought:

Name, address and phone number of hospital or doctor:	
Was employee involved in any other incidents/accidents? If yes, describe	2:
Any history of work accidents, absenteeism, and/or disciplinary problems	s:
Substance abuse test administered: Yes, No – if no, why not?	
Medical release obtained:	
Corrective Action Taken:	
Supervisor	Date
Safety Officer	Date
Comments:	

Safe Plan Of Action

Job/Task	Work Area		Date	
Steps of Task	Hazard/Reaction to Change	Safe Plan	Resources	
Team Members' Signatures				
				
The signature of the supervisor confirms the co	mpletion of the hazard assessment and Safe Plan of Action	on by the crew.		
Supervisors Signature:		Date		

Instructions: 1. Write name of job or task in space provided. 2. Conduct walk-through survey of work area. 3. Write the steps of the task in a safe sequence. 4. List all possible hazards involved in each step and reaction to change. 5. In the Safe Plan column, state actions that will be taken to prevent the hazards or injury from reaction to change. 6. In Resources column, list equipment, tools, etc. needed to do the job. 8. Ask each team member, who helped develop and will use this SPA, to sign in spaces provided. 9. Review the SPA at the end of the task for improvements.

Work shall stop when conditions change, the job changes, or a deficiency in the plan is discovered, and the current SPA will be modified or a new SPA created.

Project No.

Project No.		
Job/Task	Work Area	 Date:
Team Member Signature Sheet Continuation		
	·	
		

Review checklist while completing front page of SPA. Check all that apply.			
	A new SPA is require	ed if the job scope or work conditions change.	
Required Permits	Hazards	Safe Plan	
☐ Confined Space ☐ Critical Lift	Overhead Utilities	□ Power de-energization required □ Insulation blankets required □ Wire watcher required □ Required clearance distance = Ft. □ Safe work zone marked	
☐ Hot Work	☐ Crane or other	☐ Signalman assigned ☐ Tag lines in use ☐ Area around crane barricaded	
☐ Lock Out/Tag Out	Lifting Equipment	☐ Lifting equipment inspected ☐ Personnel protected from overhead load	
☐ Soil Disturbance (Over 12")	☐ Underground Utilities	☐ Reviewed as-builts ☐ Subsurface surveys ☐ Received dig permit	
☐ Utility Clearance		☐ Required clearance distance = Ft. ☐ Safe work zone Marked	
Required PPE	□ _{Electrical}	☐ Lock Out/Tag Out/Try Out ☐ Permit required? ☐ Confirm that equipment is de-energized	
☐ Hard Hat, Class C ☐ Hard Hat, Class E (Elect. Protect)		Reviewed electrical safety procedures	
_	Excavations	☐ Permits ☐ Inspected prior to entering ☐ Proper sloping/shoring	
☐ Ear Plugs/Ear Muffs Eye Protection:	☐ Fire Hazard	☐ Barricades provided ☐ Access/egress provided ☐ Protection from accumulated water ☐ Hot Work Permit ☐ Fire Extinguishers ☐ Fire watch	
Safety Glasses	The Hazard	☐ Adjacent area protected ☐ Unnecessary flammable material removed	
☐ Face Shield	☐ Vehicular Traffic or	☐ Traffic Barricades ☐ Cones ☐ Signs ☐ Flagmen ☐ Lane closure	
☐ Chemical Goggles	Heavy Equipment	☐ Communication with equipment operator	
□ Welding Hood	☐ Noise >85 dB	Hearing protection is required: ☐ Ear plugs ☐ Ear Muffs ☐ Both	
Hand Protection:	☐ Hand & Power Tools:	☐ Inspect general cond. ☐ GFCI in use ☐ Identified PPE required for each tool	
☐ Cut Resistant Gloves		☐ Reviewed safety requirements in operators manual(s) ☐ Guarding OK	
☐ Welders Gloves	☐ Hand Hazards	List sharp tools, material, equipment:	
☐ Nitrile Gloves		☐ PPE gloves, etc. ☐ Protected sharp edges as necessary	
☐ Surgical Gloves	☐ Manual Lifting	☐ Reviewed proper lifting tech. ☐ Identified material requiring lifting equipment	
Rubber Gloves		☐ Hand protection required ☐ Back support belts	
☐ Elect. Insulated Gloves	Ladders	☐ Inspect general cond. before use ☐ Ladder inspected with in last quarter	
☐ Arm Sleeves		☐ Ladder tied off or held ☐ Proper angle and placement ☐ Reviewed ladder safety	
Foot Protection:	☐ Scaffolds	□ Inspect general condition before use □ Tags in place □ Properly secured	
= 0.0.0) 110.11.200.0	D	☐ Toe boards used ☐ Footings adequate ☐ Materials properly stored on scaffold	
☐ Safety Toe Boots ☐ Rubber Boots	☐ Slips, Trips Falls	☐ Inspect for trip hazards ☐ Hazards marked ☐ Tools & material properly stored ☐ Extension cords properly secured ☐ Work zone free of debris	
Rubber Boot Covers	☐ Pinch Points	List potential pinch points:	
☐ Dielectric Footwear	- I marr omis	☐ Working near operating equipment ☐ Hand/Body positioning	
Respiratory. Protection:	Working w/ Chemicals	☐ List specific chemicals involved and list hazards and precaution on front side.	
Dust Mask		☐ Reviewed MSDS ☐ Exposure Monitoring required ☐ Have proper containers and labels. ☐ Identified proper PPE (respirators, clothing, gloves, etc.)	
☐ Air Purifying Respirator	☐ Asbestos or Lead Paint	☐ Areas to be worked may contain asbestos or lead paint ☐ Asbestos controls incorporated	
□ Supplied Air Respirator	Potential	☐ Lead based point controls in place ☐ Exposure monitoring conducted.	
□ SCBA	☐ Heat Stress Potential	☐ Heat stress monitoring (>85°) ☐ Liquids available ☐ Cool down periods	
☐ Emergency Escape Respirator		☐ Sun Screen ☐ Reviewed Heat Stress symptoms	
Special Clothing:	☐ Cold Stress Potential	☐ Proper clothing (i.e., gloves, coat, coveralls) ☐ Wind chill <32°	
		☐ Reviewed Cold Stress symptoms ☐ Warm up periods	
☐ Tyvek ®	☐ Environmental	☐ Air emissions ☐ Water discharge ☐ Hazardous wastes ☐ Other wastes	
Poly Coated Tyvek ®		☐ Pollution prevention ☐ Waste minimization	
☐ Fire Resistant Coveralls ☐ Rain Suit	☐ Natural or Site Hazards	☐ Weather ☐ Terrain ☐ Adjacent operations or processes ☐ Biological hazards	
Rain Suit Safety Vest		Animals/reptiles/insects hazards	
Galety Vest	☐ Adjacent Work/Processes	□ Notified them of our presents □ Other workers adjacent, above, or below.	
Fall Protection:	☐ Barricades/covers	☐ Coordinated with adjacent supervisor/customer/operator ☐ Need barriers between. ☐ Caution barricade tape required ☐ Danger barricade tape required ☐ Rigid railing required	
☐ Harness	Barricades/covers	□ Covers over opening □ Warning signs required	
Double Lanyard Required		Additional Information:	
☐ Anchorage Point Available		Additional information.	
Additional Anchorage Connector	1		
Needed e.g. Cross Arm Strap, etc.			
☐ Retractable Device Needed			
Horizontal Life Line System Req'd.			
Fall Clearance Distance Adequate			
Fall Rescue/Retrieval Plan Set Up			

Sevenson Environmental Services, Inc. CONFINED SPACE PERMIT

		Length of PermitEquipment ID Work							
Authorized Entrant Will "HOT" Work	(s)be authorized for t	his Entry	? <u> </u>	No; Yes	(describe)				
HAZARDOUS ID	DENTIFICATION	V							
Indicate ALL potential Hazards of this Permit Space: a. Contains or may contain a hazardous atmosphere b. Contains a material for potential engulfment c. Has an internal configuration for potential entrapment If "Yes", describe d. Contains the following serious safety or health Hazards:									
PRE-ENTRY PRI	EPARATION								
		YES	N/A		Done		Removed		
				Date	Time	By	Date	Time	By
1. Lines broken and	l/or blanked:								
Line Contents	Location								
a.									
b.									
c.									
2. Drain or at a wor	kable level								
3. Purge - flush and	l vent								
4. Force air to botto	om & vent								
5. Lock out power f	feeds:								
Equip/Location of I	Lock out								
a.									
b.									
6. Shut-off heating	systems								
7. Other:									

TEST TO BE TAK	KEN						
		Tiı	me	Time	Time	Time	
		Tes	ster	Tester	Tester	Tester	
	P.E.L.	Yes	N/A	Results	Results	Results	
% of Oxygen	19.5% to 23%						
% of LEL	Any % over 10						
Carbon Monoxide	25 ppm						
Hydrogen Sulfide	10 ppm						
VOC							
Temperature	< 110°F/43°C						
PREVENTION OF	FUNAUTHORIZ	ED ENT	RY				
1. Have Worker(s) t 2. Have Attendants 3. Post "WORKER 4. Set-up the follow	been trained for thi IN CONFINED SP	s specific PACE" Si	space?	entry?			
MANDATORY SA	FETY EQUIPMI	ENT REC	QUIRED				
	on ng Shoes ipment Required				ES N/A		
·							
					D FOR THIS ENTI	RY	
(Verify that chosen 1			eration.)		Verified by:		
2							

RES	CUE EQUIPMENT TO BE PROVIDED ON-SITE		
a. b. c. d. e. f. g.	Two chest harnesses or two wristlets Two five minute supplied air escape respirators One 30 minute S.C.B.A. One emergency siren Man basket Retrieval wench Other necessary Rescue Equipment	YES N/A	
IN C	SASE OF EMERGENCY		
1 2	ue Service	<u> </u>	Jumber or Ext.
	ed Space Entry Supervisor or designee must sign beloons necessary for SAFE entry have been met.	ow AFTER all the above actio	ns are fully understood and
	Authorization	of Entry	
	Signature (if not CSE Supervisor, add title)	Date	Time
	Termination	of Entry	
	Signature	Date	Time

Sevenson Environmental Services, Inc. Daily Safety Meeting DATE: JOB NAME: DAY: & NUMBER: TOPIC: PRINT SIGNATURE:

Sevenson Environmental Services, Inc. DAILY SAFETY REPORT

DATE:	
WORK PERIOD COVERED:	
WEATHER CONDITIONS:	
SUMMARY OF DAY'S WORK ACTIVITY:	
EQUIPMENT UTILIZED BY SAFETY MONITORS:	
PROTECTIVE CLOTHING AND EQUIPMENT BEING USE	D BY TASK:
PHYSICAL CONDITION OF WORKERS (any heat or cold st	ress or other medical problems):
ACCIDENTS OR BREACH OF PROCEDURES:	
DESCRIPTION OF MONITORING AND AIR SAMPLES TA	KEN:
TYPE AND NUMBER OF PERMITS ISSUED:	
SUMMARY OF TRAINING AND SAFETY MEETING:	
NAME:	TITLE: Site Health and Safety Officer
SIGNATURE:	

Sevenson Environmental Services, Inc. EMPLOYEE & VISITOR LOG

DATE:				
PRINT NAME	SIGNATURE	COMPANY	Time In	Time Out

Sevenson Environmental Services, Inc. TRAINING ACKNOWLEDGMENT FORM NAME: **ADDRESS:** SOCIAL SECURITY NO.: XXX-XX-**EMPLOYER:** I have completed and understand the training program for work to be carried out during work at the Site, including the following topics: Work Rules and Safety Requirements a. Personal Protection Equipment b. Potentially Hazardous Chemicals c. Emergency Equipment and Plan d. Reporting Injuries and Illnesses e. **Emergency Procedures** f. Job Assignment g. Personal Hygiene h. **Medical Tests** i. j. **Standard Operating Procedures** Applicable Rules and Regulations Site Personnel Signature: Date: I certify that this Site Person has received adequate safety training and instruction and that this person is proficient in the use of protective clothing and equipment and knowledgeable in all aspects of the Accident Prevention Plan. Safety Officer Signature: __ Date: _

Sevenson Environmental Services, Inc.

HOT WORK PERMIT

HOT WORK LEAVIT					
Job Description:	Job Description: ☐ Welding; ☐Torch/oxy/acetylene; ☐ Grinding/Cut saw; ☐Maintenance; ☐ Heating Operation; ☐ Other:				
Permit Duration:	a	hrs;	2 hrs		
Person(s) Perform	ning Hot Wo	ork:			
Fire Watch Requ	ired? 🗌 Yes	; □ No			
If yes, Fire Watcl	h Attendant:				
Air Monitoring F	Required? 🗌	Yes; No Respi	iratory Protection R	equired?	
		MONI	TORING able Levels)	<u> </u>	
DATE	TIME	O ₂ (19.5-22.0%)	LEL (0-10%)	ORGANIC VAPOR* (0-25ppm)	
		FIRE PR	OTECTION		
Fire extinguisher pro Regulations: YES				perations in compliance with OSHA	
Activity Hazard Ana	lysis attached a	and reviewed by affect	ted personnel: YES		
Requirements for Performing Hot Work Flame retardant gloves, coat, and proper eye protection (glasses or shield with welding/cutting rated glass lens) Respirators will be required when welding/cutting/heating areas that cannot be decontaminated or when welding on stainless steel (Cr-VI) or galvanized metal (metal fume fever). Use fire blankets when necessary to protect material or areas where removing combustibles is not practical. Inspect welder, lead lines, and ensure unit is properly grounded. Maintain a 50 ft diameter clearance for flammables (i.e., fuel cans, vapors) an/or 25 ft diameter clearance for combustibles (i.e., wood, rags, debris) Oxygen & Acetylene bottles are secure with regulators removed and caps installed prior to moving or unattended during breaks Inspect all hoses, torch, tips and regulators for defects and ensure flash suppressors are installed Properly store all empty and full cylinders from vicinity and protect from hot work activities Barricade walkway under any overhead work If welding shields are not available, barricade and delineate all work areas when using a torch or welder with a minimum distance of 75 feet. When normal fire prevention precautions are not sufficient, a qualified fire watch is required. The fire watch shall be instructed in anticipated fire hazards and shall perform assigned duties to 30 minutes after hot work was stopped. At completion of work activity, disassemble all hoses and regulators and properly store Toxic surface coatings must be removed prior to welding, cutting or heating. A minimum of 4-inches must be cleared from each side of the weld, cut, or heated area. *If working with fuel oil the PID for organic vapors will be used to determine the LEL due to the poor LEL sensor					
than 250 ppm V Health and Safety (DATE:	

INCOMING EQUIPMENT CHECK

ITEM(S) INSPECTED			
Equip Type Equip. ID# Date	YES	NO	NA
Falling Object Protective Structure (FOP)			
Roll-Over Protective Structure (ROP)			
Seat Belts			
Operator Seat Bar(s)			
Side Shields, Screens, or Cab			
Grab Handles			
Back-Up Alarm - Working			
Lights			
Guards			
Horn			
Anti-Skid Tread Steps Clear of Mud			
Safety Signs/Warning Labels			
Fire Extinguisher			
Oil Level (Full/ No Leaks)			
Operator's Area Clear of Extra Materials			
Controls Function Properly			
Hydraulic System Level (Full/ No Leaks)			
Parking Brake			
Lift Arm and Bucket			
Tires/Tracks			
Steering			
Operators Name: (Print)			

Instructions: Inspect all applicable items each shift. If item is found to be unsatisfactory report to SSHO or Superintendent.

DAILY EQUIPMENT CHECK LIST

ITEM(S) INSPECTED							
Equipment Type:	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Equipment ID:							
Week of :							
Operators Name:							
Operators Initials							
Falling Object Protective Structure (FOP)							
Roll-Over Protective Structure (ROP)							
Seat Belts							
Operator Seat Bar(s)							
Side Shields, Screens, or Cab							
Grab Handles							
Back-Up Alarm							
Lights							
Guards							
Horn							
Anti-Skid Tread Steps Clear of Debris							
Safety Signs / Warning Labels							
Fire Extinguisher							
Oil Level (Full / No Leaks)							
Operator's Area Clear of Extra Materials							
Controls Function Properly							
Hydraulic System Level (Full / No Leaks)							
Parking Brake							
Lift Arm & Bucket							
Tries / Tracks							
Steering							

SEVENSON ENVIRONMENTAL SERVICES, INC. CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE

MEWP: Pre-use Inspection Checklist

To be completed by operator or authorized person when a MEWP is first brought on site and before it is used

	Please Print	
CONTACT NAME:	CONTACT NUMBER:	
INSPECTED BY:	DATE/TIME:	
TYPE OF MEWP:	MODEL # :	

Inspection Item	Pass	Fail	Comments
The manufacturer's operations manual is stored on MEWP.	P	F	
Safety decals are in place and readable.	P	F	
Control panel is clean & all buttons/switches are clearly visible	P	F	
(no paint over spray, etc.)			
All safety indicator lights work.	P	F	
Motion alarms are functional.	P	F	
All guardrails are sound and in place, including basket chains, and gate door.	P	F	
All switch & mechanical guards are in good condition and properly installed.	P	F	
Work platform extension slides in & out freely with safety locking pins in place to lock setting on models with extension platforms.	Р	F	
Work platform & extension slides are clean, dry, & clear of debris.	P	F	
Inspect for defects such as cracked welds, fuel leaks, hydraulic leaks, damaged control cables or wire harness, etc.	P	F	
Operating and emergency controls are in proper working condition, EMO button or Emergency Stop.	P	F	
Both upper and lower controls are adequately protected from inadvertent operation.	P	F	
Drive controls function properly & are accurately labeled (up, down, right, left, forward, back).	Р	F	
Emergency lowering function operated properly.	P	F	
Lower operating controls successfully over ride the upper controls.	P	F	
Upper drive controls interlock mechanism is functional (i.e. foot pedal, spring lock, or two hand controls).	P	F	
Tires and wheels are in good condition, with adequate air pressure if pneumatic.	P	F	
Braking devices are operating properly.	P	F	
Inspect the battery and hydraulic equipment.	P	F	
Grounding Strap is in place and operational.	P	F	

Explain any item marked "F" (fail): _		

Workplace Assessment: Survey work area for potential hazardous operating conditions prior to MEWP usage. Ensure hazards identified are addressed in AHA or during pre-task planning process with sufficient strategies to mitigate the hazards or risks.

Floor/ground conditions: Drop offs, holes, uneven surfaces, sloped floors, unstable ground, etc.	Present	Not Present
Housekeeping: debris, floor obstructions, cords, construction materials, supplies, etc.	Present	Not Present
Hazardous Energy: Electrical power cables or panels, chemical/gas/drain lines, utilities, etc.	Present	Not Present
Overhead obstructions: Tight working conditions, adjacent structures, pipe racks, beams,	Present	Not Present
ceiling grids, etc.		

Appendix E

Activity Hazard Analysis



Activity Hazard Analysis (AHA)

Activity/Work Task: Backfill & Grading		<u> </u>	Overal	l Risk Assess	sment Code	e (RAC) (Use highes	t code)	М
Project Location: South Plainfield, New Jersey		Risk Assessment Code (RAC) Matrix							
Contract Number: W912DQ-10-D-3006 TASK ORDER : CF02 Date Prepared: May 22, 2012		Covi	.au!4		F	Probability	у		
		- Sev	erity	Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name/Title): Paul Jung/Co	orporate \$	Safety		strophic	E	E	Н	Н	M
Reviewed by (Name/Title): Eric Tschudi	•		Mai	itical rginal ligible	E H M	H M	M I	L L	L
Notes: (Field Notes, Review Comments, etc.)				ach " Hazard" with i		" Controls " ar	nd determine RAC	(See above)	_
			identified as: Fre	the likelihood to caus quent, Likely, Occas	sional, Seldom o	r Unlikely.		RAC	
			occur and identifi	outcome/degree if a led as: Catastrophic the RAC (Probability	, Critical, Margin	al, or Negligib	e F	I = Extremely I = High Risk I = Moderate	
Job Steps	-	Hazards	"Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.		. = Low Risk	RAC			
1. Pre-job set up	1. 2. 3.	Emergency Respons Heavy equipment ins Hand tool inspection	spection	1. Rallying point an emergency 2. Only qualified heavy equipment use. Equipped ROPS are requipment dail 3. Ensure perstools before ear of all safety decrease.	nts. Notification of the control of	on of prope s will be aut nt properly e backup a eavy equipo ined on spe correct tool sure they a	horized to ope secured when arms and sea ment. Inspect ecific tools. Ins for the job. M re functioning.	erate not in t belts. spect ake use	1. L 2. L 3. L
2. Place fill	1.	Biological (i.e., Plant Snake, and Infection		1. Avoid insect habitats of sna and clothing for Wasp/Bee spray brush clearing wash of any oi increased cont scare animals, for biological hinests or likely repellants i.e.,	kes and use or tick periodic ay for nests. activities. Use. (Hot water act with the interior Do NOT application apards before habitats of sr	tick insect in cally throug Use Poison se cool water opens skirritating oils proach anire commendiakes. Use	repellant. Che hout the day. I Ivy Barrier cre er and mild so n pores, which .). Use loud so nals. Survey to ing work. Avo appropriate in	eck skin Use eam in ap to n allows ounds to the area id insect sect	1. M

Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian	2. M
loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in	3. M
equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be	4. L
correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment. 5. Barricade open excavations. Be aware of cave in potential. Competent person on site during activity. Contact local mark out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of excavation. Maintain proper slope for soil classification.	5. M
	infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SS

			1
6.	Exposed to vehicle traffic	excavation. When an unknown hazard has been encountered, work will stop until hazards and controls are identified and in place. Perry Novak (Superintendent) is the competent person for excavations. When persons will be in or around an excavation, a Competent Person shall inspect the excavation, the adjacent area and protective systems daily: before each work shift; throughout the work shifts as dictated by the work being done; after every rain storm; after events that could increase hazards, e.g., snowstorm, windstorm, thaw, earthquake, etc.; when fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom or similar conditions occur; when there is a change in size, location or placement of the spoil pile; and where there is any indication or change in adjacent structures. Note: In excavations 4 feet or greater in depth, air in the excavation shall be tested prior to the start of each shift or more often if directed by the COR. A log or all test results shall be maintained at the work site. 6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that	6. M
7.	Exposure to high noise	damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer. 7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of boaring protection.	7. L
8.	Exposure to high/low ambient temperatures	personnel on use of hearing protection. Employees on hearing conservation program. 8. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed	8. M

	skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool	
	liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	
9. Flying Debris	9. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear	9. M
10. Hand/Power tools	appropriate PPE (i.e., Safety glasses/goggles/faceshield). 10. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all potents and appure they are functioning.	10. M
11. Walking/Working surface	of all safety devices and ensure they are functioning. 11. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	11. L
12. Hand injuries from pinch points	12. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	12. L
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	13. M
14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be	14. M
15. Severe Weather	eliminated or protected. 15. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	15. L
16. Fueling operation	conditions, etc.) 16. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations.	16. M

		NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	
Grade material	Struck by/against heavy equipment 2. Chemical spill	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO.	1. M
	3. Exposed to vehicle traffic	Subcontractors to supply MSDSs for chemicals to be used. 3. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and	3. M

		on site equipment. Drivers are to follow the direction of	
		flaggers/spotters. Drivers are required to wear safety reflective	
		vests whenever they are outside their vehicle. Drivers shall	
		obey all safe-driving regulations, including wearing seat belts.	
		Observe speed limit of 5 miles per hour onsite or other posted	
		,	
		speeds limits. Site vehicles and trucks will be equipped with	
		backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
		the superintendent and safety officer.	
4.	Exposure to high noise	4. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	4. L
		personnel on use of hearing protection. Employees on	
		hearing conservation program.	
5.	Exposure to high/low ambient	5. Discuss signs/symptoms of heat/cold stress. Conduct	5. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
	·	place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
	Elvina Dobrio	periodically throughout the workday.	6. L
0.	Flying Debris	6. Ensure guards are installed and working on	6. L
		tools/equipment. Initiate dust control measures. Wear	
	Talla francial availant	appropriate PPE (i.e., Safety glasses/goggles/faceshield).	7 84
1.	Falls from elevation	7. Personnel/workers shall not ride on moving equipment	7. M
		unless a seat with seatbelt is provided. Maintain three points	
		of contact when climbing on or off equipment. Fall protection	
		required when working from heights greater than 6 feet.	
		Workers shall use the proper sized ladders or stairs to climb to	
	NA/ III: AA/ II:	a different height.	١
8.	Walking/Working surface	8. Good housekeeping practices. Keep walkways and work	8. L
		areas clear of hoses, cords, and clutter. Restrict site to	
		essential personnel. Wear steal toe/composite boots.	
9.	Excavation Cave In	9. Barricade open excavations. Be aware of cave in potential.	9. L
		Competent person on site during activity. Contact local mark	
		out. Authority to identify and mark underground utilities. Keep	
		vehicles/equipment at sufficient distance from edge of	1

	excavation. Maintain proper slope for soil classification.	
	Maintain spoils two feet from edge of excavation. Perform	
	daily excavation/trench inspection. Provide access/egress to	
	excavation. When an unknown hazard has been encountered,	
	work will stop until hazards and controls are identified and in	
	place. Perry Novak (Superintendent) is the competent person	
	for excavations. When persons will be in or around an	
	excavation, a Competent Person shall inspect the excavation,	
	the adjacent area and protective systems daily: before each	
	work shift; throughout the work shifts as dictated by the work	
	being done; after every rain storm; after events that could	
	increase hazards, e.g., snowstorm, windstorm, thaw,	
	earthquake, etc.; when fissures, tension cracks, sloughing,	
	undercutting, water seepage, bulging at the bottom or similar	
	conditions occur; when there is a change in size, location or	
	placement of the spoil pile; and where there is any indication	
	or change in adjacent structures.	
	Note: In excavations 4 feet or greater in depth, air in the	
	excavation shall be tested prior to the start of each shift or	
	more often if directed by the COR. A log or all test results shall	
10 Fire/Eyplosion	be maintained at the work site.	10. M
10. Fire/Explosion	10. Fire extinguisher inspected and in place. It may be	I U. IVI
	necessary to wet down work area when combustible materiel	
	cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame	
	Permit) from SSHO for any activity that involves welding	
	radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in	
	the presence of explosive atmospheres. Use good	
	housekeeping practices. All ignition sources shall be	
	eliminated or protected.	
11. Severe Weather	11. Monitor weather for severe conditions. Discuss severe	11. L
11. Severe Weather	conditions with USACE and Superintendents when it poses a	11. L
	hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
	conditions, etc.)	
12. Hand/Power tools	12. Ensure personnel are trained on specific tools. Inspect	12. L
12. Hallah Swel tools	tools before each use. Use correct tool for the job. Make use	
	of all safety devices and ensure they are functioning.	
13. Fueling operation	13. All equipment will be shut down prior to fueling. Do not	13. M
10. I doming operation	stage equipment in areas of high vegetation. Observe site	
	smoking policies. Do not smoke during fueling operations.	
	NOTE: Smoking is never permitted while in the Exclusion	
	Zone! Fueling will be accomplished in well-ventilated areas	
	away from ignition sources. Equipment and fuel tank do not	
	need to be bonded or grounded if the metal nozzle is in	

		contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations	
4.Survey activities	Struck by/against heavy equipment 2. Exposed to vehicle traffic	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property	1. M

		damage based on their knowledge as a driver and their	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
		the superintendent and safety officer.	
3.	Exposure to high noise	3. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	3. L
		personnel on use of hearing protection. Employees on	
		hearing conservation program.	
4.	Exposure to high/low ambient	4. Discuss signs/symptoms of heat/cold stress. Conduct	4. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
	•	place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
5.	Flying Debris	5. Ensure guards are installed and working on	5. L
		tools/equipment. Initiate dust control measures. Wear	
		appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
6.	Walking/Working surface	6. Good housekeeping practices. Keep walkways and work	6. L
		areas clear of hoses, cords, and clutter. Restrict site to	
		essential personnel. Wear steal toe/composite boots.	
7.	Excavation Cave In	7. Barricade open excavations. Be aware of cave in potential.	7. M
		Competent person on site during activity. Contact local mark	
		out. Authority to identify and mark underground utilities. Keep	
		vehicles/equipment at sufficient distance from edge of	
		excavation. Maintain proper slope for soil classification.	
		Maintain spoils two feet from edge of excavation. Perform	
		daily excavation/trench inspection. Provide access/egress to	
		excavation. When an unknown hazard has been encountered,	
		· ·	
		work will stop until hazards and controls are identified and in	
		place. Perry Novak (Superintendent) is the competent person	
		for excavations. When persons will be in or around an	
		excavation, a Competent Person shall inspect the excavation,	
		the adjacent area and protective systems daily: before each	
		work shift; throughout the work shifts as dictated by the work	
		being done; after every rain storm; after events that could	
		increase hazards, e.g., snowstorm, windstorm, thaw,	
		earthquake, etc.; when fissures, tension cracks, sloughing,	
		undercutting, water seepage, bulging at the bottom or similar	
		conditions occur; when there is a change in size, location or	
		, , , , , , , , , , , , , , , , , , , ,	l

	8.		or change in Note: In except excavation so more often in the maintaine solutions what is a conditions who conditions, solutions, sol	of the spoil pile; and where there is any indication adjacent structures. Cavations 4 feet or greater in depth, air in the shall be tested prior to the start of each shift or f directed by the COR. A log or all test results shall ed at the work site veather for severe conditions. Discuss severe with USACE and Superintendents when it poses a orkers (i.e. Hurricanes, Thunderstorm, Blizzard etc.) ersonnel are trained on specific tools. Inspect tools use. Use correct tool for the job. Make use of all es and ensure they are functioning.	8. L 9. L
Equipment to be Used		Training Requirements/Com Qualified Personnel nar	•	Inspection Requirements	
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Tracked excavator Dump Trucks Bull dozer Survey equipment Misc. Hand tools (shovels, rakes, etc.)	II	The SSHO (Eric Tschudi) shall be th Competent person for the following: Fall Protection Program Respiratory Protection Program Hazardous Communication Prograt The Superintendent (Perry Novak) st competent or qualified person for the Excavations General Operations Site Specific: 1. OSHA HAZWOPER 2. HTRW activity training 3. Site specific 4. Daily tailgate safety meetings at affected employees can voice th and/or recommendations of the straining requirements. 5. Hazard communication Supervisory Personnel: 1. OSHA supervisor's training	e am hall be the following:	 Site Inspection: Daily inspection by Health and Safety Officer Motor Vehicles: Before initial use vehicles will be inspected by mechanic and found to be in a safe operating condition. Equipment: Before equipment is placed in use it will be insand tested by a competent person. Inspections and tests will be done in accordar manufacturer's instructions. All equipment will be inspected daily when in operator. Inspections and tests will be documented and will be maintained at the site. Personal Protective Equipment (PPE): 	spected nce with use by the
		Motor Vehicle: 1. Operators shall hold a valid lice type and class of vehicle they a operating.		Disposal Protective Equipment (PPE): Disposal PPE shall be inspected before each use. A defective PPE shall be repaired or replaced be All reusable PPE shall be decontaminated and	Any fore use.

Heavy Equipment: 1. Trained and qualified operators.	properly before reuse.
Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	



Activity Hazard Analysis (AHA)

Activity/Work Task: Clearing and Grubbing		Overall Risk Assessment Code (RAC) (Use highest code)					Н	
Project Location: South Plainfield, New Jersey			Risk Assessment Code (RAC) Matrix					
Contract Number: W912DQ-10-D-3006 TASK ORDER: 0002		Sove	ority.			Probabilit	у	
Date Prepared: May 23, 2012		Sev	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jun	g/ Corporate Safety		trophic ical	E E	E H	H	H M	M
Reviewed by (Name/Title): Eric Tsc	chudi/SSHO	Mar	ginal igible	H	M	M	L	L
Notes: Clearing and grubbing activities contaminated with PCBs	for property cluster remediation		ach " Hazard" with id		"Controls" a	nd determine RAC	C (See above)	
		identified as: Freq	ne likelihood to caus uent, Likely, Occasi	ional, Seldom o	r Unlikely.		RAC (
		occur and identifie	outcome/degree if a ed as: Catastrophic,	Critical, Margin	al, or Negligib	ole I	H = High Risk	High Risk
			ne RAC (Probability/ Annotate the overa				<mark>/I = Moderate</mark> _ = Low Risk	Risk
Job Steps	Hazards			Controls			RAC	
Pre-job set up	Emergency Respor Heavy equipment in Hand tool inspectio	nspection	an emergency 2. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment daily. 3. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.				n not in at belts. spect lake use	2. L 3. L
2. Land Clearing	1. Biological (i.e., Plar Snake, and Infectio	Snake, and Infectious Material)		1. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick		eck skin Use eam in pap to h allows ounds to he area pid insect sect d Repel	1. IVI	

	Struck by/against heavy equipment	infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385	2. M
4. (Chemical spill Contact with sharp objects/material	1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves,	3. M 4. M
5.	Truck loading	long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment. 5. Truck to be turned off before entering the bed to place liner. A ladder is to be used to access the truck bed. A spotter shall be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps. Tyvek is to be worn while lining the truck bed to reduce personal contamination. Once truck bed is loaded, signal excavator operator that truck bed is clear and to commence loading.	5. M

6.	Exposure to high noise	6. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	6. L
		personnel on use of hearing protection. Employees on hearing conservation program.	
7.	Exposure to high/low ambient	7. Discuss signs/symptoms of heat/cold stress. Conduct	7. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
8.	Flying Debris	8. Ensure guards are installed and working on	8. M
		tools/equipment. Initiate dust control measures. Wear	
		appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
9.	Hand/Power tools	9. Ensure personnel are trained on specific tools. Inspect	9. M
		tools before each use. Use correct tool for the job. Make use	
	NA/- II die e AA/- elde ee eeuste	of all safety devices and ensure they are functioning.	40.14
10	. Walking/Working surface	10. Good housekeeping practices. Keep walkways and work	10. M
		areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During	
		winter, maintain work areas clear of accumulating snow or ice.	
11	. Hand injuries from pinch points	11. Ensure site personnel utilize appropriate hand protection.	11. M
		Avoid placing hands in tight spaces while moving materials.	
12	. Falls from elevation	12. Personnel/workers shall not ride on moving equipment	12. M
		unless a seat with seatbelt is provided. Maintain three points	
		of contact when climbing on or off equipment. Fall protection	
		required when working from heights greater than 6 feet.	
		Workers shall use the proper sized ladders or stairs to climb to	
	Fire/Francisco	a different height.	40.14
13	. Fire/Explosion	13. Fire extinguisher inspected and in place. It may be	13. M
		necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot	
		work procedures. Obtain Hot Work Permit (Open Flame	
		Permit) from SSHO for any activity that involves welding	
		radiation, flashes, sparks, molten metal, and slag. Follow hot	
		work permit procedures. No such activity will be permitted in	
		the presence of explosive atmospheres. Use good	
		housekeeping practices. All ignition sources shall be	
		eliminated or protected.	

14. Severe	e Weather	14. Monitor weather for severe conditions. Discuss severe	14. L
14. 567616	e weather	conditions with USACE and Superintendents when it poses a	14. L
		hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
		conditions, etc.)	
15 Fuelin	a aparation		15. M
To. Fueling	g operation	15. All equipment will be shut down prior to fueling. Do not	15. W
		stage equipment in areas of high vegetation. Observe site	
		smoking policies. Do not smoke during fueling operations.	
		NOTE: Smoking is never permitted while in the Exclusion	
		Zone! Fueling will be accomplished in well-ventilated areas	
		away from ignition sources. Equipment and fuel tank do not	
		need to be bonded or grounded if the metal nozzle is in	
		contact with the metal of the equipment's fuel tank. Practice	
		good housekeeping habits. Maintain spill response equipment,	
		and ensure that the spill cleanup materials are compatible with	
		materials to be cleaned up. Practice spill prevention at all	
		times. Keep only enough materials onhand for use (to	
		minimize potential amount to spill/leak). Perform proper	
		chemical use and storage. Refer to MSDS for proper handling	
		procedures, disposal, cleanup and PPE requirements. Keep a	
		Spill Control and Countermeasures Plan in place, and	
		review/update it periodically. Report all spills/leaks to the	
		SSHO. If any spills/leaks occur, they will be contained,	
		identified, and disposed of in accordance with Federal, State,	
		and Local regulations.	
16. Inhala	tion/contact with hazardous	16. Ensure site personnel have the appropriate HAZWOPER,	16. M
materi	ial	medical clearance and Site Specific training. Follow	
		decontamination procedures. Follow emergency contingency	
		procedures. Implement site control areas. Perform real time	
		air monitoring. Wear appropriate PPE for task/activity	
		performed.	
17. Chains	saw operation	17. Workers operating the chainsaw will understand how the	17. H
		chainsaw works and will have experience using one. The	
		chainsaw will be inspected prior to use and all guards will be	
		attached and functioning properly. Dull blades will be	
		replaced, as needed. Workers will be required to wear a	
		hardhat, faceshield, safety glasses, hearing protection, gloves,	
		and chaps while operating the chainsaw. The chainsaw will be	
		turned off when fueling. Care will be taken to ensure fuel does	
		not contact hot parts. Refer to the recommended controls for	
		Fire/Explosion for more controls when working with flammable	
		liquids.	
18. Inhala	tion/contact with hazardous	18. Ensure site personnel have the appropriate HAZWOPER,	18. M
materi		medical clearance and Site Specific training. Follow	
		decontamination procedures. Follow emergency contingency	
		procedures. Implement site control areas. Perform real time	
		p and the second	<u> </u>

			air monitoring. Wear appropriate PPE for task/activity performed.	
3. Loading of truck	Insec Mate	gical (i.e., Plants, ets, Snake, and Infectious erial) ck by/against heavy oment	1. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy	1. M 2. M
			equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	
	3. Cher	nical spill	3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	3. M
		act with sharp cts/material	4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves,	4. M

5. Truck loading	long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment. 5. Truck to be turned off before entering the bed to place liner. A ladder is to be used to access the truck bed. A spotter shall be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps. Tyvek is to be worn while lining the truck bed to reduce personal contamination. Once truck bed is loaded, signal	5. M
6. Exposed to vehicle traffic	excavator operator that truck bed is clear and to commence loading. 6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 15 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or	6. M
7. Exposure to high noise	property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer. 7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on	7. L
Exposure to high/low ambient temperatures	hearing conservation program. 8. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for	8. M

	symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the	
	workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed	
	skin when performing work outdoors. Drink plenty of fluids and	
	review the signs and symptoms of heat related illness. Rest as	
	needed. Wear sunscreen and tinted safety glasses. Drink cool	
	liquids as appropriate. Monitor core temperatures of workers	
	periodically throughout the workday.	
9. Flying Debris	Ensure guards are installed and working on	9. M
	tools/equipment. Initiate dust control measures. Wear	
	appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
10. Hand/Power tools	10. Ensure personnel are trained on specific tools. Inspect	10. M
	tools before each use. Use correct tool for the job. Make use	
AA Malling and Alanking a conferen	of all safety devices and ensure they are functioning.	44 84
11. Walking/Working surface	11. Good housekeeping practices. Keep walkways and work	11. M
	areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During	
	winter, maintain work areas clear of accumulating snow or ice.	
12. Hand injuries from pinch	12. Ensure site personnel utilize appropriate hand protection.	12. M
points	Avoid placing hands in tight spaces while moving materials.	121 101
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment	13. M
	unless a seat with seatbelt is provided. Maintain three points	
	of contact when climbing on or off equipment. Fall protection	
	required when working from heights greater than 6 feet.	
	Workers shall use the proper sized ladders or stairs to climb to	
	a different height.	
14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be	14. M
	necessary to wet down work area when combustible materiel	
	cannot be moved. Fire watch during and 30 minutes after hot	
	work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding	
	radiation, flashes, sparks, molten metal, and slag. Follow hot	
	work permit procedures. No such activity will be permitted in	
	the presence of explosive atmospheres. Use good	
	housekeeping practices. All ignition sources shall be	
	eliminated or protected.	
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe	15. L
	conditions with USACE and Superintendents when it poses a	
	hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
	conditions, etc.)	
16. Fueling operation	16. All equipment will be shut down prior to fueling. Do not	16. M
	stage equipment in areas of high vegetation. Observe site	
	smoking policies. Do not smoke during fueling operations.	
	NOTE: Smoking is never permitted while in the Exclusion	

	17. Inhalation/contact with hazardous material	away from igneed to be be contact with the good houseker and ensure the materials to be times. Keep of minimize pote chemical use procedures, of Spill Control areview/update SSHO. If any identified, and Local regional Local region medical clear decontaminar procedures.	nition sources. Equipment and fuel tank do not conded or grounded if the metal nozzle is in the metal of the equipment's fuel tank. Practice eeping habits. Maintain spill response equipment, that the spill cleanup materials are compatible with the cleaned up. Practice spill prevention at all conly enough materials onhand for use (to ential amount to spill/leak). Perform proper and storage. Refer to MSDS for proper handling disposal, cleanup and PPE requirements. Keep a and Countermeasures Plan in place, and e it periodically. Report all spills/leaks to the spills/leaks occur, they will be contained, disposed of in accordance with Federal, State, gulations. It is personnel have the appropriate HAZWOPER, rance and Site Specific training. Follow tion procedures. Follow emergency contingency Implement site control areas. Perform real time g. Wear appropriate PPE for task/activity	17. M
Equipment to be Used	Training Requirements/Com Qualified Personnel nan	•	Inspection Requirements	
Level D PPE (Gloves, Safety Glasses, W boots, Hardhat, Hi visibility clothing (Clas reflective apparel required when exposed public vehicle traffic) Modified Level D PPE to include: Hardhat, face shield, safety glasses (not brand sunglasses), Hi visibility clothing (Classes), Hi visibility clothing (Classes), Hi visibility clothing (Classes), Safety glasses (Not brand sunglasses), Hi visibility clothing (Classes), Hi visibility clothing (Class	The SSHO (Eric Tschudi) shall be the Competent person for the following: To Fall Protection Program Respiratory Protection Program Hazardous Communication Program Hazardous Communication Program The Superintendent (Perry Novak) shad to competent or qualified person for the	e am hall be the	 Site Inspection: Daily inspection by Health and Safety Officer Motor Vehicles: Before initial use vehicles will be inspected be mechanic and found to be in a safe operating condition. Equipment: 	
Walkie Talkie Radios Tracked excavator Misc. Hand tools (shovels, rakes, etc.) Monitoring Instruments (dust monitor) Dump Trucks/Roll off trucks and containe Chainsaw (Workers will be required to we hardhat, faceshield, safety glasses, heari	Radios vator ols (shovels, rakes, etc.) struments (dust monitor) Roll off trucks and containers orkers will be required to wear a Site Specific: 1. OSHA HAZWOPER 2. HTRW activity training 3. Site specific 4. Daily tailgate safety meetings a affected employees can voice the		 Before equipment is placed in use it will be in and tested by a competent person and an approper inspection check list completed. Inspections and tests will be done in accordate manufacturer's instructions. All equipment will be inspected daily when in operator by completing an approved check I 	nce with use by the

Zone! Fueling will be accomplished in well-ventilated areas

and/or recommendations of the site-specific	Inspections and tests will be documented and records
training requirements.	will be maintained at the site.
5. Hazard communication	
	Personal Protective Equipment (PPE):
Supervisory Personnel:	Disposal PPE shall be inspected before each use.
	2. Reusable PPE shall be inspected before use. Any
OSHA supervisor's training	defective PPE shall be repaired or replaced before use.
9	All reusable PPE shall be decontaminated and stored
Motor Vehicle:	properly before reuse.
	property desires contact
Operators shall hold a valid license for the	
· ·	
1	
operaturg.	
Heavy Equipment:	
Troaty Equipment	
1 Trained and qualified operators	
Equipment General:	
1. Employees will be qualified and trained to	
1	
	training requirements.



Activity/Work Task: Excavation		Overal	l Risk Assess	sment Code	e (RAC)	(Use highes	st code)	М
Project Location: South Plainfield, Nev	w Jersey	Risk Assessment Code (RAC) Matrix		ıtrix	•			
Contract Number: W912DQ-10-D-3006 TASK ORDER : CF02		Sov	0 1			Probabilit	у	
Date Prepared: May 23, 2012		– Sev	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung/	Corporate Safety		trophic tical	E E	E H	H	H M	M
Reviewed by (Name/Title): Eric Tschu	di/SSHO	Mar	ginal ligible	H M	M	M L	L	L
For excavations greater than 5 feet in deprequired. The Excavation and Trenching P	Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above than 5 feet in depth, an AHA is required, a plan is not. than 5 feet in depth, both an AHA and plan is not and Trenching Plan must be accepted by the COR vation in accordance with EM 385-1-1, 25.A.01. Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above than 5 feet in depth, both an AHA and plan is identified as: Frequent, Likely, Occasional, Seldom or Unlikely. "Severity" is the outcome/degree if an incident, near miss, or accident didoccur and identified as: Catastrophic, Critical, Marginal, or Negligible E = Extreme H = High Ris		Notes, Review Comments, etc.) Ins less than 5 feet in depth, an AHA is required, a plan is not. Ins greater than 5 feet in depth, both an AHA and plan is Excavation and Trenching Plan must be accepted by the COR art of excavation in accordance with EM 385-1-1, 25.A.01. Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely. "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible E = Extra		RAC (E = Extremely H = High Risk M = Moderate	High Risk		
Job Steps	Hazards	"Hazard" on AHA	. Annotate the over		at the top of A	AHA.	L = Low Risk	RAC
1. Pre-job set up	Emergency Respon Heavy equipment in Hand tool inspection	nspection n	Rallying points. Notification of proper authorities in event of an emergency		erate n not in at belts. spect lake use	1. L 2. L 3. L		
2. Excavation of material	1. Biological (i.e., Plan Snake, and Infection					eck skin Use ream in pap to h allows ounds to the area pid insect asect d Repel	1. M	

2.	Struck by/against heavy equipment	infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385	2. M
3.	Chemical spill Contact with sharp objects/material	1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure	3.M 4. L
5.	Exposed to vehicle traffic	they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment. 5. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use	5. M

	safety reflective vest when working around active traffic and	
	on site equipment. Drivers are to follow the direction of	
	flaggers/spotters. Drivers are required to wear safety reflective	
	vests whenever they are outside their vehicle. Drivers shall	
	obey all safe-driving regulations, including wearing seat belts.	
	Observe speed limit of 5 miles per hour onsite or other posted	
	speeds limits. Site vehicles and trucks will be equipped with	
	backup alarms. Signal personnel to use standard traffic control	
	signals. NOTE: When driver is concerned about a location or	
	condition that may cause an incident, injury, or property	
	damage based on their knowledge as a driver and their	
	equipment, the driver is to stop and review the situation with	
	the superintendent and safety officer.	
6 Evaceure to high poins		e M
Exposure to high noise	6. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	6. M
	personnel on use of hearing protection. Employees on	
7 Forman de bioloffer and inst	hearing conservation program.	l .
7. Exposure to high/low ambient	7. Discuss signs/symptoms of heat/cold stress. Conduct	7. L
temperatures	periodic safety briefs about heat/cold stress. If work takes	
	place in cold weather: Dress properly and protect exposed	
	skin when performing work outdoors. Workers should have	
	extra clothing to change into if they get wet. Watch for	
	symptoms of exposure. Drink warm liquids as needed. Monitor	
	core temperatures of workers periodically throughout the	
	workday. If work takes place in hot weather: Plan activity early	
	in the day (if possible). Dress properly and protect exposed	
	skin when performing work outdoors. Drink plenty of fluids and	
	review the signs and symptoms of heat related illness. Rest as	
	needed. Wear sunscreen and tinted safety glasses. Drink cool	
	liquids as appropriate. Monitor core temperatures of workers	
	periodically throughout the workday.	
Flying Debris	8. Ensure guards are installed and working on	8. M
	tools/equipment. Initiate dust control measures. Wear	
	appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
Hand/Power tools	9. Ensure personnel are trained on specific tools. Inspect	9. M
	tools before each use. Use correct tool for the job. Make use	
	of all safety devices and ensure they are functioning.	
Walking/Working surface	10. Good housekeeping practices. Keep walkways and work	10.M
	areas clear of hoses, cords, and clutter. Restrict site to	
	essential personnel. Wear steal toe/composite boots. During	
	winter, maintain work areas clear of accumulating snow or ice.	
11. Hand injuries from pinch points	11. Ensure site personnel utilize appropriate hand protection.	11. M
, , , , , , , , , , , , , , , , , , ,	Avoid placing hands in tight spaces while moving materials.	
12. Falls from elevation	12. Personnel/workers shall not ride on moving equipment	12. M
	unless a seat with seatbelt is provided. Maintain three points	
	of contact when climbing on or off equipment. Fall protection	
	or contact which difficilly on or on equipment, I all protection	

13. Fire/Explosion	required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height. 13. Fire extinguisher inspected and in place. It may be	13.M
To. The Explosion	necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot	10.11
	work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding	
	radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in	
	the presence of explosive atmospheres. Use good	
	housekeeping practices. All ignition sources shall be eliminated or protected.	
14. Severe Weather	14. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	14. L
	conditions, etc.)	
15. Excavation cave-in	15. Barricade open excavations. Be aware of cave in potential.	15. M
	Competent person on site during activity. Contact local mark	
	out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of	
	excavation. Maintain proper slope for soil classification.	
	Maintain spoils two feet from edge of excavation. Perform	
	daily excavation/trench inspection. Provide access/egress to	
	excavation. When an unknown hazard has been encountered,	
	work will stop until hazards and controls are identified and in	
	place. Perry Novak (Superintendent) is the competent person	
	for excavations. When persons will be in or around an excavation, a Competent Person shall inspect the excavation,	
	the adjacent area and protective systems daily: before each	
	work shift; throughout the work shifts as dictated by the work	
	being done; after every rain storm; after events that could	
	increase hazards, e.g., snowstorm, windstorm, thaw,	
	earthquake, etc.; when fissures, tension cracks, sloughing,	
	undercutting, water seepage, bulging at the bottom or similar conditions occur; when there is a change in size, location or	
	placement of the spoil pile; and where there is any indication	
	or change in adjacent structures.	
	Note: In excavations 4 feet or greater in depth, air in the	
	excavation shall be tested prior to the start of each shift or	
	more often if directed by the COR. A log or all test results shall	
40. Fireling agenting	be maintained at the work site.	40 N
16. Fueling operation	16. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site	16. M
	stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations.	
	ornorang policies. Do not smoke during rucing operations.	

		NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	
	17. Inhalation/contact with hazardous material	17. Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	17. M
3. Loading of truck	Biological (i.e., Plants, Insects, Snake, and Infectious Material) 1. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	1. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET for the insects. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	1. M
	Struck by/against heavy equipment	2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment	2. M

T			ı
		regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment.	
	3. Chemical spill	For stationary equipment-rope off or guard swing radius. 3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper	3. M
		chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	
	4 Contact with aborn		4.1
	Contact with sharp objects/material	4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	4. L
	5. Truck loading	5. Truck to be turned off before entering the bed to place liner. A ladder is to be used to access the truck bed. A spotter shall be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps. Tyvek is to be worn while lining the truck bed to reduce personal contamination. Once truck bed is loaded, signal excavator operator that truck bed is clear and to commence loading.	5. H
	6. Exposed to vehicle traffic	6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective	6. M

		vests whenever they are outside their vehicle. Drivers shall	
		obey all safe-driving regulations, including wearing seat belts.	
		Observe speed limit of 5 miles per hour onsite or other posted	
		speeds limits. Site vehicles and trucks will be equipped with	
		backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
		the superintendent and safety officer.	
7.	Exposure to high noise	7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	7. L
	5	personnel on use of hearing protection. Employees on	
		hearing conservation program.	
8.	Exposure to high/low ambient	8. Discuss signs/symptoms of heat/cold stress. Conduct	8. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
	E	periodically throughout the workday.	
9.	Flying Debris	9. Ensure guards are installed and working on	9. M
		tools/equipment. Initiate dust control measures. Wear	
10	Lland/Davier to als	appropriate PPE (i.e., Safety glasses/goggles/faceshield).	40.1
10.	Hand/Power tools	10. Ensure personnel are trained on specific tools. Inspect	10. L
		tools before each use. Use correct tool for the job. Make use	
11	Walking/Working surface	of all safety devices and ensure they are functioning. 11. Good housekeeping practices. Keep walkways and work	11. M
	Waiking/Working Surface	areas clear of hoses, cords, and clutter. Restrict site to	1 1 . IVI
		essential personnel. Wear steal toe/composite boots. During	
		winter, maintain work areas clear of accumulating snow or ice.	
12.	Hand injuries from pinch	12. Ensure site personnel utilize appropriate hand protection.	12. L
	points	Avoid placing hands in tight spaces while moving materials.	· —-
13.	Falls from elevation	13. Personnel/workers shall not ride on moving equipment	13. M
		unless a seat with seatbelt is provided. Maintain three points	
		of contact when climbing on or off equipment. Fall protection	
		required when working from heights greater than 6 feet.	
		Workers shall use the proper sized ladders or stairs to climb to	
		a different height.	

14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	14. M
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	15. L
17. Inhalation/contact with hazardous material	16. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations. 17. Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	16. M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Modified Level D PPE to include: Hardhat, face shield, safety glasses (not store brand sunglasses), Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic, steel toe-work boots, (NO shorts, Tank Tops), Tyvek coveralls, and inner and outer nitrile gloves. Walkie Talkie Radios Tracked excavator Misc. Hand tools (shovels, rakes, etc.) Monitoring Instruments (dust monitor) Dump Trucks	The SSHO (Eric Tschudi) shall be the Competent person for the following: Fall Protection Program Respiratory Protection Program Hazardous Communication Program Confined Space Program The Superintendent (Perry Novak) shall be the competent or qualified person for the following: Excavations General Operations Site Specific: 1. OSHA HAZWOPER 2. HTRW activity training 3. Site specific 4. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 5. Hazard communication Supervisory Personnel: 1. OSHA supervisor's training Motor Vehicle: 1. Operators shall hold a valid license for the type and class of vehicle they are operating. Heavy Equipment: 1. Trained and qualified operators. Equipment General:	 Site Inspection: Daily inspection by Health and Safety Officer Excavation inspection by the Competent Person as described in Excavation Cave In. Motor Vehicles: Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: Before equipment is placed in use it will be inspected and tested by a competent person. Inspections and tests will be done in accordance with manufacturer's instructions. All equipment will be inspected daily when in use by the operator. Inspections and tests will be documented and records will be maintained at the site. Personal Protective Equipment (PPE): Disposal PPE shall be inspected before each use. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

Employees will be qualified and trained to operate or service mechanical equipment.	

Activity/Work Task: Hydroseeding		Overall R	isk Assessment C	ode (RAC)	(Use highes	t code)	М	
Project Location: South Plainfield, N	ject Location: South Plainfield, New Jersey		Risk Assessment Code (RAC) Matrix					
Contract Number: W912DQ-10-D-3	006 TASK ORDER : CF02	Cover	:4		Probabilit	у		
Date Prepared: May 22, 2012		Sever	Freque	nt Likely	Occasional	Seldom	Unlikely	
Prepared by (Name/Title): Paul Jun	g/Corporate Safety	Catastro Critica		E	H	H	M	
Reviewed by (Name/Title): Eric Tsc	hudi/SSHO	Margir Negligi	al H	M	M	L	L	
Notes: (Field Notes, Review Comments, et	c.)		"Hazard" with identified sa	fety "Controls"	and determine RAC	(See above)	_	
		"Probability" is the lidentified as: Freque	ikelihood to cause an incide nt, Likely, Occasional, Seldo	nt, near miss, or om or Unlikely.	accident and	RAC (Chart	
		occur and identified	come/degree if an incident, as: Catastrophic, Critical, Ma	arginal, or Negligi	ible F	= Extremely I = High Risk		
			RAC (Probability/Severity) a nnotate the overall highest I			<pre>M = Moderate L = Low Risk</pre>	Risk	
Job Steps	Hazards			Controls			RAC	
1. Pre-job set up	Emergency Respons Heavy equipment ins Hand tool inspection	spection 2. hu R eu 1 to	Rallying points. Notifing emergency Only qualified employ eavy equipment. Equipment. Equipment. Equipment are quipment daily. Ensure personnel are ols before each use. Use all safety devices and	ees will be autement properly able backup all heavy equip trained on sp	uthorized to ope y secured wher alarms and sea oment. Inspect pecific tools. In ol for the job. M	erate n not in t belts. spect ake use	2. L 3. L	
2. Hydroseeding	1. Biological (i.e., Plant Snake, and Infection	us Material) ha al VV bi w in sc fc nc re	abitats of snakes and und clothing for tick period clothing for tick period asp/Bee spray for nest clearing activities ash of any oils. (Hot was creased contact with the care animals. Do NOT or biological hazards be ests or likely habitats of the cermanone (permethring)	ect nest, spiders and spider webs, or likely nakes and use tick insect repellant. Check skin for tick periodically throughout the day. Use pray for nests. Use Poison Ivy Barrier cream in a activities. Use cool water and mild soap to oils. (Hot water opens skin pores, which allows ontact with the irritating oils.). Use loud sounds to als. Do NOT approach animals. Survey the area I hazards before commencing work. Avoid insect ly habitats of snakes. Use appropriate insect e., DEET to protect skin from insects and Repel (permethrins) or equivalent for clothing in tick as. Check skin and clothing for ticks periodically		eck skin Use eam in ap to a allows ounds to he area id insect sect I Repel n tick	1. M	

		Tar	
2.	. Struck by/against heavy equipment	throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or	2. M
		stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off	
3.	. Chemical spill	or guard swing radius. 3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	3. M
4.	. Contact with sharp objects/material	4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	4. L
5.	. Handling heavy objects/ material	5. Use proper lifting techniques. Utilize proper hoisting/material handling techniques and/or equipment. Use buddy system for heavy, awkward loads. Distribute loads evenly.	5. M

6. Exposed to vehicle traffic	6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to	6. M
	specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and	
	on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted	
	speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their	
	equipment, the driver is to stop and review the situation with the superintendent and safety officer.	
7. Exposure to high noise	7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program. Hearing protection is required for the hydroseeder. If used, the mulch spreading machine (straw gun) requires hearing protection.	7. M
8. Exposure to high/low ambient temperatures	8. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	8. M
9. Flying Debris	9. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear	9. M
10. Hand/Power tools	appropriate PPE (i.e., Safety glasses/goggles/faceshield). 10. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	10. M

11. Walking/Working surface	11. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to	11. L
	essential personnel. Wear steal toe/composite boots.	
12. Hand injuries from pinch points	12. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	12. L
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment	13. M
	unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection	
	required when working from heights greater than 6 feet.	
	Workers shall use the proper sized ladders or stairs to climb to a different height.	
14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be	14. M
· ·	necessary to wet down work area when combustible materiel	
	cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame	
	Permit) from SSHO for any activity that involves welding	
	radiation, flashes, sparks, molten metal, and slag. Follow hot	
	work permit procedures. No such activity will be permitted in	
	the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be	
	eliminated or protected.	
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe	15. L
	conditions with USACE and Superintendents when it poses a	
	hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
16. Fueling operation	conditions, etc.) 16. All equipment will be shut down prior to fueling. Do not	16. M
To. 1 defining operation	stage equipment in areas of high vegetation. Observe site	10. IVI
	smoking policies. Do not smoke during fueling operations.	
	NOTE: Smoking is never permitted while in the Exclusion	
	Zone! Fueling will be accomplished in well-ventilated areas	
	away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in	
	contact with the metal of the equipment's fuel tank. Practice	
	good housekeeping habits. Maintain spill response equipment,	
	and ensure that the spill cleanup materials are compatible with	
	materials to be cleaned up. Practice spill prevention at all	
	times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper	
	chemical use and storage. Refer to MSDS for proper handling	
	procedures, disposal, cleanup and PPE requirements. Keep a	
	Spill Control and Countermeasures Plan in place, and	
	review/update it periodically. Report all spills/leaks to the	
	SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State,	
	and Local regulations.	
17. Caustic burns from Hydroseedin		17. M

	18. Inhalation of Dust/allergens/ Hydroseeding19. Confined Space Entry	Safety glasses/goggles/faceshield). Ensure guards are installed and working on tools/equipment. 18. Equipment operator may wear particulate dust filter if or when affected by general dust or allergens. Wear appropriate PPE. 19. Identify and post all confined spaces that will be encountered during planned activities (Permitted and Nonpermitted). Perform air monitoring and provide local ventilation. Review and implement confine space entry procedures prior to entering any confine space. Wear appropriate level of PPE. Confined Space Permit will be filled out before entry is allowed. The following information will be required: Area to be entered, Personnel and their job task (Entrant, Attendant, S&H, Standby personnel). Plan of action, work to be performed Real time air monitoring for CO, VOC's, OXY, H2S, LEL will be performed with the use of Multi-Rae multi gas instrument, for duration of confined space entry. Any exceedences of action levels, the entrant will be evacuated from the confined space. Insure appropriate lighting is established for entry into confined space. Inspect all cords and GFCI to be used with lighting. Equipment or circuits that are de-energized shall be rendered inoperative and have tags attached (Lock Out/Tag Out) at all points where such
Equipment to be Used	Training Requirements/Cor	equipment or circuits can be energized. ompetent or Inspection Requirements
Level D PPE (Gloves, Safety Glasses, W boots, Hardhat, Hi visibility clothing (Classeflective apparel required when exposed public vehicle traffic, face shield) Long sleeved shirts and long legged panywhen handling straw. Walkie Talkie Radios Misc. Hand tools (shovels, rakes, etc.) Fire extinguisher	s II Competent person for the following: ☐ Fall Protection Program ☐ Respiratory Protection Program	Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. 2. All over-the-road vehicles will have the proper state-required inspections. 3. Operators shall hold a valid license for the type and class of vehicle they are operating. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with

Heavy Equipment: 1. Trained and qualified operators. Equipment General: 1. All required safety equipment must be operational before using the heavy equipment.	 Inspections and tests will be documented and records will be maintained at the site. Employees will be qualified and trained to operate or service mechanical equipment. Personal Protective Equipment (PPE): Disposal PPE shall be inspected before each use. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.
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Activity/Work Task: Silt Fence and/or	Overall	Risk Assessn	ment Code	e (RAC) ((Use highes	t code)	М	
Project Location: South Plainfield, New Jersey		Risk Assessment Code (RAC) Matrix						
Contract Number: W912DQ-10-D-30	06 TASK ORDER : CF02	Causa			F	Probability	У	
Date Prepared: May 22, 2012		Seve	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung	/Corporate Safety	Catastr		E	Е	Н	Н	M
Reviewed by (Name/Title): Eric Tsch		Criti Marg	inal	E H	H M	H M	M L	L
Notes: (Field Notes, Review Comments, etc.		Negli		M	L	L	L	L
votes. (Field Notes, Review Comments, etc.	.)		ch "Hazard" with ide				(See above)	
		"Probability" is the identified as: Frequ	e likelihood to cause ent, Likely, Occasio	e an incident, n onal, Seldom o	ear miss, or a r Unlikely.	ccident and	RAC	Chart
			utcome/degree if and as: Catastrophic, 0			dent did	= Extremely I = High Risk	High Risk
			RAC (Probability/S Annotate the overal			each N	I = Moderate = Low Risk	Risk
Job Steps	Hazards	Hazara on AnA.	Annotate the overal		controls	M 1/4.	= LOW NISK	RAC
1. Pre-job set up 1. Emergency Respo 2. Heavy equipment i			1. Rallying point an emergency 2. Only qualified	ts. Notificati	on of prope			1. L 2. L
	Hand tool inspection	1	heavy equipmer use. Equipped we ROPS are requiequipment daily and Ensure perso tools before each all safety devi	nt. Equipme vith operablined on all his nnel are trach th use. Use	nt properly e backup a eavy equipe ined on spe correct too	secured when larms and sea ment. Inspect ecific tools. Ins for the job. M	not in t belts. spect ake use	3. L
2. Fence installation		Biological (i.e., Plants, Insects, Snake, and Infectious Material)		1. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically		ick skin Use eam in ap to a allows ounds to ne area id insect sect Repel n tick	1. M	

		throughout the day. Use wasp/bee spray for nests. Protect	
		bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin	
2.	Chemical spill	pores, which allows increased contact with the irritating oils). 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO.	2. M
3.	Contact with sharp	Subcontractors to supply MSDSs for chemicals to be used. 3. Ensure personnel are trained on specific tools. Use correct	3. M
	objects/material	tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	6
4.	Handling heavy objects/ material	4. Use proper lifting techniques. Utilize proper hoisting/material handling techniques and/or equipment. Use buddy system for heavy, awkward loads. Distribute loads evenly.	4. M
5.	Exposure to high noise	5. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection.	5. M
6.	temperatures	6. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	6. M
7.	Flying Debris	7. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	7. M

8. Hand/Power tools	8. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use	8. M
9. Walking/Working surface	of all safety devices and ensure they are functioning. 9. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	9. M
10. Hand injuries from pinch points	10. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	10. M
11. Severe Weather	11. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	11. L
12. Fueling operation	12. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	12. M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Misc. Hand tools (sledge hammers, utility knives, pliers, etc.) Fire extinguisher	_ · · · · · · · · · · · · · · · · · · ·	Inspection Requirements Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. 2. All over-the-road vehicles will have the proper state-required inspections. 3. Operators shall hold a valid license for the type and class of vehicle they are operating. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records will be maintained at the site. 5. Employees will be qualified and trained to operate or service mechanical equipment. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any
		defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

Activity/Work Task: Sampling Activi	k Task: Sampling Activities Overall Risk Assessment Code (RAC) (Use		(Use highes	t code)	М			
Project Location: South Plainfield, N	Project Location: South Plainfield, New Jersey		Risk Assessment Code (RAC) Matrix					•
Contract Number: W912DQ-10-D-3	006 TASK ORDER : CF02	Cove	w!4			Probability	у	
Date Prepared: May 22, 2012		Seve	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jun	g/Corporate Safety	Catasti Criti		E E	E H	H	H M	M
Reviewed by (Name/Title): Eric Tsc	hudi/SSHO	Marg Negli	inal	H M	M	M	L	L
Notes: (Field Notes, Review Comments, e	c.)		ch " Hazard " with id		"Controls" a	nd determine RAC	(See above)	
		"Severity" is the o	e likelihood to cause lent, Likely, Occasio lutcome/degree if ar	onal, Seldom o n incident, neai	r Unlikely. r miss, or acc	ident did	RAC (
		Step 2: Identify the	d as: Catastrophic, (e RAC (Probability/S Annotate the overa	Severity) as E,	H, M, or L for	each N	I = High Risk I = Moderate . = Low Risk	Risk
Job Steps	Hazards				ontrols			RAC
1. Pre-job set up	Emergency Responsion Heavy equipment in Hand tool inspection	nspection	an emergency		erate not in t belts. spect ake use	1. L 2. L 3. L		
2. Surveying	1. Struck by/against he equipment		1. Approach equiqualified employ equipment. Equipped with care required on regularly. Flaggisafety reflective personnel to reriside, not in front distance. Driver and to stop vehiuntil ground per	yees will be ipment propoperable bac all heavy eders/spotters evest when main in the country to fithe vehics to maintaicle if sight is	authorized berly secure ckup alarm quipment. assigned working ard drivers view cle, and to n visual sigs lost. Veh	to operate head when not in a sand seat belt Inspect equipment of the maintain a safult of ground pricle not to be mediated.	use. s. ROPS nent ary. Use nt. Ground driver's e ersonnel noved	1. M

	Makista ta ka akat danin Masaasaan Handain III. ONE (4)	ı
2. Exposed to vehicle traffic	Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and	2. M
Exposure to high noise	on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer. 3. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on	3. L
Exposure to high/low ambient temperatures	hearing conservation program. 4. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	4. M

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M
М

		air monitoring. Wear appropriate PPE for task/activity performed.	
3. Sampling in field	Struck by/against heavy equipment 2. Exposed to vehicle traffic	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or saind near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE:	1. M 2. M
	Exposure to high noise	3. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on	J. L

		hearing conservation program.	
4.	Exposure to high/low ambient	4. Discuss signs/symptoms of heat/cold stress. Conduct	4. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
	p	place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
5.	Flying Debris	5. Ensure guards are installed and working on	5. L
	Trying Boons	tools/equipment. Initiate dust control measures. Wear	0
		appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
6.	Walking/Working surface	6. Good housekeeping practices. Keep walkways and work	6. L
	Training Training Callace	areas clear of hoses, cords, and clutter. Restrict site to	· -
		essential personnel. Wear steal toe/composite boots.	
7.	Excavation Cave In	7. Barricade open excavations. Be aware of cave in potential.	7. M
		Competent person on site during activity. Contact local mark	
		out. Authority to identify and mark underground utilities. Keep	
		vehicles/equipment at sufficient distance from edge of	
		excavation. Maintain proper slope for soil classification.	
		Maintain spoils two feet from edge of excavation. Perform	
		daily excavation/trench inspection. Provide access/egress to	
		excavation. When an unknown hazard has been encountered,	
		work will stop until hazards and controls are identified and in	
		place.	
8.	Severe Weather	8. Monitor weather for severe conditions. Discuss severe	8. L
		conditions with USACE and Superintendents when it poses a	
		hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
		conditions, etc.)	
9.	Hand/Power tools	9. Ensure personnel are trained on specific tools. Inspect tools	9. L
		before each use. Use correct tool for the job. Make use of all	
		safety devices and ensure they are functioning.	
10	. Biological (i.e., Plants, Insects,	10. Avoid insect nest, spiders and spider webs, or likely	10. M
	Snake, and Infectious Material)	habitats of snakes and use tick insect repellant. Check skin	
		and clothing for tick periodically throughout the day. Use	
		Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in	
		brush clearing activities. Use cool water and mild soap to	
		wash of any oils. (Hot water opens skin pores, which allows	
		increased contact with the irritating oils.). Use loud sounds to	

		scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET for the insects. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	
	11. Inhalation/contact with hazardous material	11. Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	11. M
	12. Engulfment	12. Avoid those areas deemed unsafe and negotiate banks in	12. M
	13. Working in water	those areas where cave-in potential is minimal. 13. Safe wading depth will be considered to be 3.0 feet. Additionally, the safe wading depth will be adjusted (decreased) based upon the depth, location and flow/force of the water. Throw ring with 75 ft of rope available. Buddy system in effect. Always wear a Coast guard approved PFD while wading. Be aware of depressions, holes, or loose footing may cause a fall. Be aware of flow conditions; leave the area if flash flooding or inclement weather conditions present hazards to personnel. Do not attempt wading in creeks/rivers where the depth multiplied by the velocity is equal to or greater than 10 ft2/s.	13. M
4. Sample counting in lab	Pinch Points with Shield Lid	Keep fingers and hands clear of area where the shield lid closes. Alert other workers to potential pinch point locations. Use hand tools to prevent hand injury. Wear leather gloves (or other appropriate hand protection) where appropriate.	1. M
	Contact with Sharp Objects/ Materials	2. Use caution and be aware whenever working around sharp objects contained in soil samples such as broken glass and metal. Mixing trowels have sharp-edge hazards when mixing samples. Wear appropriate PPE (i.e.: Kevlar glove liners).	2. M
	3. Electrical Shock	3. Ensure equipment is properly maintained and grounded and has GFCI protection. Ensure all extensions cords are the correct type and are protected from damage. Equipment or circuits that are de-energized shall be rendered inoperative and have tags attached (Lock Out/Tag Out) at all points where such	3. M

4.	Slips/Trips/Falls	equipment or circuits can be energized. All electrical wiring and equipment shall be of a type listed by UL or Factory Mutual Engineering Corp. for the specific application (and right for the job. 4. Initial survey requires walking over the area of concern. Sturdy steel toe or composite toe workboots provide support when walking over uneven ground	4. M
5.	Inhalation/contact with hazardous material	5. Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	5. M
6.	Biological (i.e., Plants, Insects, Snake, and Infectious Material)	6. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests.	6. M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic)	The SSHO (Eric Tschudi) shall be the Competent person for the following: Fall Protection Program Respiratory Protection Program Hazardous Communication Program	Site Inspection: 1. Daily inspection by Health and Safety Officer
Modified Level D PPE to include: Hardhat, face shield, safety glasses (not store brand sunglasses), Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic), steel toe-work boots, (NO shorts, Tank Tops), Tyvek coveralls, and	□ Confined Space Program The Superintendent (Perry Novak) shall be the competent or qualified person for the following: □ Excavations □ General Operations	Motor Vehicles: Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition.
inner and outer nitrile gloves.	Site Specific:	Equipment:
Walkie Talkie Radios Tracked excavator Misc. Hand tools (shovels, rakes, etc.)	 OSHA HAZWOPER HTRW activity training Site specific Daily tailgate safety meetings at which the 	 Before equipment is placed in use it will be inspected and tested by a competent person. Inspections and tests will be done in accordance with manufacturer's instructions.

affected employees can voice their concerns
and/or recommendations of the site-specific
training requirements.

5. Hazard communication

Supervisory Personnel:

1. OSHA supervisor's training

Motor Vehicle:

 Operators shall hold a valid license for the type and class of vehicle they are operating.

Heavy Equipment:

1. Trained and qualified operators.

Equipment General:

1. Employees will be qualified and trained to operate or service mechanical equipment.

- All equipment will be inspected daily when in use by the operator.
- Inspections and tests will be documented and records will be maintained at the site.

Personal Protective Equipment (PPE):

- 1. Disposal PPE shall be inspected before each use.
- 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

Activity/Work Task: Silt Fence and/or	Barrier Fence Installation	Overall	Risk Assessn	ment Code	e (RAC) ((Use highes	t code)	М
Project Location: South Plainfield, New Jersey			Risk Ass	essmen	t Code	(RAC) Ma	trix	'
Contract Number: W912DQ-10-D-30	06 TASK ORDER : CF02	Causa			F	Probability	y	
Date Prepared: May 22, 2012		Seve	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung	/Corporate Safety	Catastr		E	Е	Н	Н	M
Reviewed by (Name/Title): Eric Tsch		Criti Marg	inal	E H	H M	H M	M L	L
Notes: (Field Notes, Review Comments, etc.		Negli		M	L	L	L	L
votes. (Field Notes, Review Comments, etc.	.)		ch "Hazard" with ide				(See above)	
		"Probability" is the identified as: Frequ	e likelihood to cause ent, Likely, Occasio	e an incident, n onal, Seldom o	ear miss, or a r Unlikely.	ccident and	RAC	Chart
			utcome/degree if and as: Catastrophic, 0			dent did	= Extremely I = High Risk	High Risk
			RAC (Probability/S Annotate the overal			each N	I = Moderate = Low Risk	Risk
Job Steps	Hazards	Hazara on AnA.	Annotate the overal		controls	M 1/4.	= LOW NISK	RAC
Pre-job set up	Emergency Respons Heavy equipment in		1. Rallying point an emergency 2. Only qualified	ts. Notificati	on of prope			1. L 2. L
	Hand tool inspection	1	heavy equipmer use. Equipped we ROPS are requiequipment daily and Ensure perso tools before each all safety devi	nt. Equipme vith operablined on all his nnel are trach th use. Use	nt properly e backup a eavy equipe ined on spe correct too	secured when larms and sea ment. Inspect ecific tools. Ins for the job. M	not in t belts. spect ake use	3. L
2. Fence installation	1. Biological (i.e., Plant Snake, and Infection			ick skin Use eam in ap to a allows ounds to ne area id insect sect Repel n tick	1. M			

		throughout the day. Use wasp/bee spray for nests. Protect	
		bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin	
2.	Chemical spill	pores, which allows increased contact with the irritating oils). 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO.	2. M
3.	Contact with sharp	Subcontractors to supply MSDSs for chemicals to be used. 3. Ensure personnel are trained on specific tools. Use correct	3. M
	objects/material	tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	6
4.	Handling heavy objects/ material	4. Use proper lifting techniques. Utilize proper hoisting/material handling techniques and/or equipment. Use buddy system for heavy, awkward loads. Distribute loads evenly.	4. M
5.	Exposure to high noise	5. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection.	5. M
6.	temperatures	6. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	6. M
7.	Flying Debris	7. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	7. M

8. Hand/Power tools	8. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use	8. M
9. Walking/Working surface	of all safety devices and ensure they are functioning. 9. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	9. M
10. Hand injuries from pinch points	10. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	10. M
11. Severe Weather	11. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	11. L
12. Fueling operation	12. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	12. M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Misc. Hand tools (sledge hammers, utility knives, pliers, etc.) Fire extinguisher	The Superintendent (Perry Novak) shall be the Competent person for the following: Fence installation Site Specific: Site specific: Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. Hazard communication. Review of this AHA and MSDS. Heavy Equipment: Trained and qualified operators. Equipment General: All required safety equipment must be operational before using the heavy equipment.	 Site Inspection: Daily inspection by Health and Safety Officer Motor Vehicles:

Activity/Work Task: Site Material Ha	auling	Overall F	isk Assessment Co	de (RAC)	(Use highes	st code)	М
Project Location: South Plainfield, I	New Jersey		Risk Assessme	ent Code	(RAC) Ma	atrix	<u>.</u>
Contract Number: W912DQ-10-D-3	3006 TASK ORDER : CF02	Sover	:4.,		Probabilit	у	
Date Prepared: May 22, 2012		Sever	Frequen	t Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jur	ng/Corporate Safety	Catastro Critica		E H	H	H	M
Reviewed by (Name/Title): Eric Tso	chudi/SSHO	Margir Negligi	al H	M	M L	L	L
Notes: (Field Notes, Review Comments, e	tc.)		"Hazard" with identified safe	ety "Controls"	and determine RA	C (See above)	
		identified as: Freque	ikelihood to cause an inciden nt, Likely, Occasional, Seldor	n or Unlikely.		RAC (
		occur and identified	come/degree if an incident, n as: Catastrophic, Critical, Mar	ginal, or Negligi	ible	E = Extremely H = High Risk	
			RAC (Probability/Severity) as nnotate the overall highest R			<mark>M = Moderate</mark> L = Low Risk	Risk
Job Steps	Hazards			Controls	•		RAC
1. Pre-job set up	Emergency Respons Heavy equipment ins Hand tool inspection	spection 2 hi	Rallying points. Notification emergency Only qualified employer eavy equipment. Equipment. Equipment. Equipment operations are required on all quipment daily. Ensure personnel are ols before each use. Using a light operations and a light operations are of all safety devices and a light operations.	ees will be au ment properly able backup a I heavy equip trained on sp se correct too ensure they	uthorized to ope y secured wher alarms and sea oment. Inspect pecific tools. In ol for the job. Mare functioning	erate n not in at belts. aspect Make use	1. L 2. L 3. L
2. Loading of truck	1. Biological (i.e., Plant Snake, and Infectiou	Is Material) h. a VV b. w in set	Avoid insect nest, spid abitats of snakes and used clothing for tick period asp/Bee spray for nest rush clearing activities. ash of any oils. (Hot was creased contact with the care animals. Do NOT or biological hazards begets or likely habitats of apellants i.e., DEET to permanone (permethrins)	se tick insect dically through the cool was ater opens of approach and fore commer snakes. Use protect skin from the commer snakes.	repellant. Che ghout the day. In Ivy Barrier cr ater and mild so kin pores, whic Is.). Use loud s imals. Survey the incing work. Avo e appropriate in	eck skin Use ream in pap to h allows counds to the area pid insect asect d Repel	1. M

	infested areas. Check skin and clothing for ticks periodically	
	throughout the day. Use wasp/bee spray for nests. Protect	
	bare skin from poison ivy by wearing long sleeves. Use Poison	
	Ivy Barrier cream in brush clearing activities. Use cool water	
	and mild soap to wash off any oils. (Hot water opens skin	
	pores, which allows increased contact with the irritating oils).	
2. Struck by/against heavy	2. Approach equipment within the operators view. Only	2. M
equipment	qualified employees will be authorized to operate heavy	2
equipment	equipment. Equipment properly secured when not in use.	
	Equipped with operable backup alarms and seat belts. ROPS	
	· · · ·	
	are required on all heavy equipment. Inspect equipment	
	regularly. Flaggers/spotters assigned where necessary. Use	
	safety reflective vest when working around equipment. Ground	
	personnel to remain in the drivers view and off to the driver's	
	side, not in front of the vehicle, and to maintain a safe	
	distance. Drivers to maintain visual sight of ground personnel	
	and to stop vehicle if sight is lost. Vehicle not to be moved	
	until ground personnel accounted for and at a safe distance.	
	Vehicle to be shut down if necessary.	
	Hand signal by ONE (1) DESIGINATED worker. Keep heavy	
	equipment at least 10 feet from power lines. Follow EM 385	
	1-1 guidelines for power line requirements. Restrict pedestrian	
	traffic. Do not walk, work, or stand near equipment being	
	loaded or unloaded. Stay out of swing radius of equipment.	
	For stationary equipment-rope off or guard swing radius.	
3. Chemical spill	3. Good housekeeping practices. Maintain spill response	3. M
	equipment onsite. Practice spill prevention at all times. Proper	
	chemical storage. Spill control and countermeasures plan in	
	place for spills encountered during work activities. Turn off	
	equipment when fuelling. Report all spills to the SSHO.	
	Subcontractors to supply MSDSs for chemicals to be used.	
4. Contact with sharp	4. Ensure personnel are trained on specific tools. Use correct	4. M
objects/material	tool for the job. Make use of all safety devices and ensure	
	they are functioning. Use care with utility knives, replace dull	
	blades, store properly. Wear appropriate PPE (i.e., gloves,	
	long-sleeved shirts and long pants) to avoid scratches. Be	
	aware of body positioning, and ensure that tools are handled	
	correctly. Take care to cut in a direction away from the body.	
	Avoid placing hands in tight places while moving materials.	
	Inspect tools before each use. If tool is not fit for use, report	
	the condition to SSHO, so that it will be taken out of service. If	
	unsure about use of any tool ask SSHO before attempting to	
	utilize tool or equipment.	
5. Truck loading	5. Truck to be turned off before entering the bed to place liner.	5. M
J. Truck loading	A ladder is to be used to access the truck bed. A spotter shall	J. IVI
	A lauder is to be used to access the truck bed. A spotter shall	

		he weed to the of a the off to held the feedbloom days to	
		be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps.	
		Tyvek is to be worn while lining the truck bed to reduce	
		personal contamination. Signal excavator operator that truck	
		bed is clear and to commence loading.	
6.	Exposed to vehicle traffic	6. Traffic in and out of the site must be maintained and orderly	6. M
	Exposed to vernois trains	throughout the workday as needed. Traffic control required for	0
		any work where work is performed on/adjacent to an active	
		street. Pedestrian traffic must be controlled. Flaggers/spotters	
		assigned where necessary, by the Superintendent, to	
		specifically control the flow of traffic in and out of the site.	
		Traffic control flaggers must be courteous, professional, and	
		alert at all times. Ground crew and flagger/spotters shall use	
		safety reflective vest when working around active traffic and	
		on site equipment. Drivers are to follow the direction of	
		flaggers/spotters. Drivers are required to wear safety reflective	
		vests whenever they are outside their vehicle. Drivers shall	
		obey all safe-driving regulations, including wearing seat belts.	
		Observe speed limit of 5 miles per hour onsite or other posted	
		speeds limits. Site vehicles and trucks will be equipped with	
		backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
		the superintendent and safety officer.	
7.	Exposure to high noise	7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	7. L
	, ,	personnel on use of hearing protection. Employees on	
		hearing conservation program.	
8.	Exposure to high/low ambient	8. Discuss signs/symptoms of heat/cold stress. Conduct	8. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
	Elving Dobris		0 M
9.	Flying Debris	9. Ensure guards are installed and working on	9. M
		tools/equipment. Initiate dust control measures. Wear	

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10. Hand/Power tools	appropriate PPE (i.e., Safety glasses/goggles/faceshield). 10. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use	10. L
11. Walking/Working surface	of all safety devices and ensure they are functioning. 11. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to	11. M
12. Hand injuries from pinch points	essential personnel. Wear steal toe/composite boots. During winter, maintain work areas clear of accumulating snow or ice. 12. Ensure site personnel utilize appropriate hand protection.	12. M
12. Hand injuries north princit points	Avoid placing hands in tight spaces while moving materials.	12. IVI
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to	13. M
14. Fire/Explosion	a different height. 14. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good	14. M
	housekeeping practices. All ignition sources shall be eliminated or protected.	
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	15. L
16. Fueling operation	16. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a	16. M

	17. Inhalation/contact with hazardous material	review/upda SSHO. If an identified, ar and Local re 17. Ensure s medical clea decontamina procedures.	and Countermeasures Plan in place, and the it periodically. Report all spills/leaks to the y spills/leaks occur, they will be contained, and disposed of in accordance with Federal, State, egulations. Site personnel have the appropriate HAZWOPER, arance and Site Specific training. Follow ation procedures. Follow emergency contingency Implement site control areas. Perform real time ang. Wear appropriate PPE for task/activity	17. M
Equipment to be Used	Training Requirements/Com Qualified Personnel na	-	Inspection Requirements	
Level D PPE (Gloves, Safety Glasses, W boots, Hardhat, Hi visibility clothing (Class reflective apparel required when exposed public vehicle traffic) Modified Level D PPE to include: Hardhat, face shield, safety glasses (not some brand sunglasses), Hi visibility clothing (Classed II) reflective apparel required when exposed public vehicle traffic), steel toe-work boots (NO shorts, Tank Tops), Tyvek coveralls, inner and outer nitrile gloves. Walkie Talkie Radios Tracked excavator Bull dozer Dump trucks Misc. Hand tools (shovels, rakes, etc.) Ladders Monitoring Instruments (dust monitor) Trucks	The SSHO (Eric Tschudi) shall be the Competent person for the following: to Fall Protection Program Respiratory Protection Program Hazardous Communication Program Confined Space Program The Superintendent (Perry Novak) secured to Excavations General Operations	am hall be the e following:	 Site Inspection: Daily inspection by Health and Safety Officer Motor Vehicles: Before initial use vehicles will be inspected by mechanic and found to be in a safe operating condition. Equipment: Before equipment is placed in use it will be in and tested by a competent person. Inspections and tests will be done in accordate manufacturer's instructions. All equipment will be inspected daily when in operator. Inspections and tests will be documented and will be maintained at the site. 	nspected unce with use by the
	Motor Vehicle: 1. Operators shall hold a valid lice type and class of vehicle they a operating. Heavy Equipment:		Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each 2. Reusable PPE shall be inspected before use. defective PPE shall be repaired or replaced be All reusable PPE shall be decontaminated and properly before reuse.	Any efore use.

Trained and qualified operators.	
Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	

Activity/Work Task: Site Mobilization		Overall	Risk Assessm	ent Code	e (RAC)	(Use highes	t code)		Н
Project Location: South Plainfield, N	ew Jersey		Risk Asse	essmen	t Code	(RAC) Ma	trix		
Contract Number: W912DQ-10-D-30	006 TASK ORDER : CF02	Source	i4	Probability					
Date Prepared: May 22, 2012		Seve	erity – F	requent	Likely	Occasional	Seldom	Ur	nlikely
Prepared by (Name/Title): Paul Jung/Corporate Safety		Catastr Criti		E E	E H	H	H		M
Reviewed by (Name/Title): Eric Tsch	nudi/SSHO	Marg Negli	inal	H M	M	M	L		L
Notes: (Field Notes, Review Comments, etc.	c.)		ch " Hazard " with ide		"Controls" a	nd determine RAC	(See above)		
		"Severity" is the o	e likelihood to cause a lent, Likely, Occasion utcome/degree if an	nal, Seldom o incident, near	r Unlikely. r miss, or acci	ident did	RAC (
		Step 2: Identify the	d as: Catastrophic, Co RAC (Probability/Se Annotate the overall	everity) as E,	H, M, or L for	each N	I = High Risk I = Moderate . = Low Risk		
Job Steps	Hazards		'Hazard" on AHA. Annotate the overall highest RAC at the top of AHA. Controls				ı	RAC	
1. Pre-job set up	 Emergency Respon Heavy equipment in Hand tool inspection 	n	1. Rallying points an emergency 2. Only qualified heavy equipment use. Equipped with ROPS are require equipment daily. 3. Ensure personation tools before each of all safety devices	employees t. Equipme ith operabl ed on all he nnel are tra n use. Use ces and en	s will be au nt properly e backup a eavy equip ined on sp correct too sure they a	thorized to ope secured when alarms and sea ment. Inspect ecific tools. In late for the job. Mare functioning.	erate not in t belts. spect ake use	3.	L
2. Mobilize equipment	1. Biological (i.e., Plan Snake, and Infection	us Material)	1. Avoid insect not habitate of snake and clothing for the Wasp/Bee spray brush clearing actives of any oils. Increased contactives and broad and broad are pellants i.e., Defermanone (perr	es and use ick periodic for nests. Ictivities. Use (Hot wate it with the ict on NOT appared bitats of small to project to project to project ick periodical in the project ick periodical	tick insect cally throug Use Poisor se cool water opens sk rritating oils proach ani e commendakes. Use tect skin fro	repellant. Che ghout the day. I I ly Barrier creater and mild so in pores, which s.). Use loud so mals. Survey the cing work. Avo appropriate in om insects and	eck skin Use eam in ap to a allows ounds to he area id insect sect I Repel	1.	М

	infested areas. Check skin and clothing for ticks periodically		
	throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison		
	Ivy Barrier cream in brush clearing activities. Use cool water		
	and mild soap to wash off any oils. (Hot water opens skin		
	pores, which allows increased contact with the irritating oils).		
2. Struck by/against heavy	2. Approach equipment within the operators view. Only	2.	M
equipment	qualified employees will be authorized to operate heavy		
	equipment. Equipment properly secured when not in use.		
	Equipped with operable backup alarms and seat belts. ROPS		
	are required on all heavy equipment. Inspect equipment		
	regularly. Flaggers/spotters assigned where necessary. Use		
	safety reflective vest when working around equipment. Ground		
	personnel to remain in the drivers view and off to the driver's		
	side, not in front of the vehicle, and to maintain a safe		
	distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved		
	until ground personnel accounted for and at a safe distance.		
	Vehicle to be shut down if necessary. Hand signal by ONE (1)		
	DESIGNATED worker. Keep heavy equipment at least 10 feet		
	from power lines. Follow EM 385 1-1 guidelines for power line		
	requirements. Restrict pedestrian traffic. Do not walk, work, or		
	stand near equipment being loaded or unloaded. Stay out of		
	swing radius of equipment. For stationary equipment-rope off		
	or guard swing radius.		
3. Chemical spill	3. Good housekeeping practices. Maintain spill response	3.	M
	equipment onsite. Practice spill prevention at all times. Proper		
	chemical storage. Spill control and countermeasures plan in		
	place for spills encountered during work activities. Turn off		
	equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.		
4. Contact with sharp	4. Ensure personnel are trained on specific tools. Use correct	4	L
objects/material	tool for the job. Make use of all safety devices and ensure		_
	they are functioning. Use care with utility knives, replace dull		
	blades, store properly. Wear appropriate PPE (i.e., gloves,		
	long-sleeved shirts and long pants) to avoid scratches. Be		
	aware of body positioning, and ensure that tools are handled		
	correctly. Take care to cut in a direction away from the body.		
	Avoid placing hands in tight places while moving materials.		
	Inspect tools before each use. If tool is not fit for use, report		
	the condition to SSHO, so that it will be taken out of service. If		
	unsure about use of any tool ask SSHO before attempting to		
5. Excavation Cave In	utilize tool or equipment. 5. Barricade open excavations. Be aware of cave in potential.	F	N.A
5. Excavation cave in	Competent person on site during activity. Contact local mark	Э.	M
	Competent person on site during activity. Contact local mark	L	

		out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of		
		excavation. Maintain proper slope for soil classification. Maintain spoils two feet from edge of excavation. Perform		
		daily excavation/trench inspection. Provide access/egress to excavation. When an unknown hazard has been encountered,		
		work will stop until hazards and controls are identified and in place.		
6.	Exposed to vehicle traffic	6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for	6.	M
		any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters		
		assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site.		
		Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use		
		safety reflective vest when working around active traffic and		
		on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective		
		vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts.		
		Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with		
		backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or		
		condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their		
		equipment, the driver is to stop and review the situation with the superintendent and safety officer.		
7.	Exposure to high noise	7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	7.	L
		personnel on use of hearing protection. Employees on hearing conservation program.		
8.	Exposure to high/low ambient temperatures	8. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes	8.	M
		place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have		
		extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor		
		core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early		
		in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and		
		review the signs and symptoms of heat related illness. Rest as		
		needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers		

	periodically throughout the workday.		
9. Flying Debris	9. Ensure guards are installed and working on	0	М
9. Flying Debits		Э.	IVI
	tools/equipment. Initiate dust control measures. Wear		
40.11.17	appropriate PPE (i.e., Safety glasses/goggles/faceshield).	4.0	
10. Hand/Power tools	10. Ensure personnel are trained on specific tools. Inspect	10.	. M
	tools before each use. Use correct tool for the job. Make use		
	of all safety devices and ensure they are functioning.		
11. Walking/Working surface	11. Good housekeeping practices. Keep walkways and work	11.	. L
	areas clear of hoses, cords, and clutter. Restrict site to		
	essential personnel. Wear steal toe/composite boots.		
12. Hand injuries from pinch points	12. Ensure site personnel utilize appropriate hand protection.	12.	. M
	Avoid placing hands in tight spaces while moving materials.		
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment	13.	. M
	unless a seat with seatbelt is provided. Maintain three points	_	
	of contact when climbing on or off equipment. Fall protection		
	required when working from heights greater than 6 feet.		
	Workers shall use the proper sized ladders or stairs to climb to		
	a different height.		
14 Fire/Evalogion		4.4	. М
14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be	14.	. IVI
	necessary to wet down work area when combustible materiel		
	cannot be moved. Fire watch during and 30 minutes after hot		
	work procedures. Obtain Hot Work Permit (Open Flame		
	Permit) from SSHO for any activity that involves welding		
	radiation, flashes, sparks, molten metal, and slag. Follow hot		
	work permit procedures. No such activity will be permitted in		
	the presence of explosive atmospheres. Use good		
	housekeeping practices. All ignition sources shall be		
	eliminated or protected.		
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe	15.	. L
	conditions with USACE and Superintendents when it poses a		
	hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard		
	conditions, etc.)		
16. Fueling operation	16. All equipment will be shut down prior to fueling. Do not	16.	. M
	stage equipment in areas of high vegetation. Observe site		
	smoking policies. Do not smoke during fueling operations.		
	NOTE: Smoking is never permitted while in the Exclusion		
	Zone! Fueling will be accomplished in well-ventilated areas		
	away from ignition sources. Equipment and fuel tank do not		
	need to be bonded or grounded if the metal nozzle is in		
	contact with the metal of the equipment's fuel tank. Practice		
	good housekeeping habits. Maintain spill response equipment,		
	and ensure that the spill cleanup materials are compatible with		
	· · · · · · · · · · · · · · · · · · ·		
	materials to be cleaned up. Practice spill prevention at all		
	times. Keep only enough materials onhand for use (to		
	minimize potential amount to spill/leak). Perform proper		

		chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	
3. Site clearing and grubbing	Struck by/against heavy equipment	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	1. M
	2. Chemical spill	2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	2. L
	3. Exposed to vehicle traffic	3. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall	3. M

	Exposure to high noise	obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer. 4. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	4	м
	Exposure to high hoise	personnel on use of hearing protection. Employees on hearing conservation program.	7.	141
5.	Exposure to high/low ambient temperatures Flying Debris	5. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday. 6. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear		Н
7.	Falls from elevation	appropriate PPE (i.e., Safety glasses/goggles/faceshield). 7. Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to	7.	L
8.	Walking/Working surface	a different height. 8. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	8.	M
9.	Fire/Explosion	9. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in	9.	M

		the presence of explosive atmospheres. Use good	
		housekeeping practices. All ignition sources shall be	
		eliminated or protected.	
10. S	Severe Weather	10. Monitor weather for severe conditions. Discuss severe	10. L
		conditions with USACE and Superintendents when it poses a	
		hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
		conditions, etc.)	
11 -	land/Power tools	11. Ensure personnel are trained on specific tools. Inspect	11. H
''.'	iand/r ower tools		11.11
		tools before each use. Use correct tool for the job. Make use	
		of all safety devices and ensure they are functioning.	
12. F	ueling operation	12. All equipment will be shut down prior to fueling. Do not	12. M
		stage equipment in areas of high vegetation. Observe site	
		smoking policies. Do not smoke during fueling operations.	
		NOTE: Smoking is never permitted while in the Exclusion	
		Zone! Fueling will be accomplished in well-ventilated areas	
		away from ignition sources. Equipment and fuel tank do not	
		need to be bonded or grounded if the metal nozzle is in	
		contact with the metal of the equipment's fuel tank. Practice	
		good housekeeping habits. Maintain spill response equipment,	
		1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		and ensure that the spill cleanup materials are compatible with	
		materials to be cleaned up. Practice spill prevention at all	
		times. Keep only enough materials onhand for use (to	
		minimize potential amount to spill/leak). Perform proper	
		chemical use and storage. Refer to MSDS for proper handling	
		procedures, disposal, cleanup and PPE requirements. Keep a	
		Spill Control and Countermeasures Plan in place, and	
		review/update it periodically. Report all spills/leaks to the	
		SSHO. If any spills/leaks occur, they will be contained,	
		identified, and disposed of in accordance with Federal, State,	
40.8	Nataria I (i. a. Dianta Incarta	and Local regulations	40.14
	Biological (i.e., Plants, Insects,	13. Avoid insect nest, spiders and spider webs, or likely	13. M
	Snake, and Infectious Material)	habitats of snakes and use tick insect repellant. Check skin	
		and clothing for tick periodically throughout the day. Use	
		Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in	
		brush clearing activities. Use cool water and mild soap to	
		wash of any oils. (Hot water opens skin pores, which allows	
		increased contact with the irritating oils.). Use loud sounds to	
		scare animals. Do NOT approach animals. Survey the area	
		for biological hazards before commencing work. Avoid insect	
		nests or likely habitats of snakes. Use appropriate insect	
		repellants i.e., DEET for the insects. Check skin and clothing	
		for ticks periodically throughout the day. Use wasp/bee spray	
		for nests. Protect bare skin from poison ivy by wearing long	
		sleeves. Use Poison Ivy Barrier cream in brush clearing	
		activities. Use cool water and mild soap to wash off any oils.	

	14. Chainsaw operation	(Hot water opens skin pores, which allows increased contact with the irritating oils). 14. Workers operating the chainsaw will understand how the chainsaw works and will have experience using one. The chainsaw will be inspected prior to use and all guards will be attached and functioning properly. Dull blades will be replaced, as needed. Workers will be required to wear a hardhat, faceshield, safety glasses, hearing protection, gloves, and chaps while operating the chainsaw. The chainsaw will be turned off when fueling. Care will be taken to ensure fuel does not contact hot parts. Refer to the recommended controls for Fire/Explosion for more controls when working with flammable liquids.	14. H
4. Construction of support facility	1. Biological (i.e., Plants, Insects, Snake, and Infectious Material) 2. Struck by/against heavy equipment	1. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET for the insects. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet	1. M

	from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.		
3. Chemical spill	3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	3.	M
Contact with sharp objects/material	4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	4.	M
5. Excavation Cave In	5. Barricade open excavations. Be aware of cave in potential. Competent person on site during activity. Contact local mark out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of excavation. Maintain proper slope for soil classification. Maintain spoils two feet from edge of excavation. Perform daily excavation/trench inspection. Provide access/egress to excavation. When an unknown hazard has been encountered, work will stop until hazards and controls are identified and in place.	5.	M
6. Exposed to vehicle traffic	6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall	6.	М

		obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with		
7.	Exposure to high noise	the superintendent and safety officer. 7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	7.	M
8.	Exposure to high/low ambient temperatures	8. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	8.	M
9.	Flying Debris	9. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	9.	M
10.	Hand/Power tools	10. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	10	. M
11.	Walking/Working surface	11. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	11	. M
13.	Hand injuries from pinch points Falls from elevation	12. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials. 13. Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	13	. M . M
14.	Fire/Explosion	14. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel	14	. M

		appeat he mayed. Fire watch during and 20 miguites after hat	
	15. Severe Weather	cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected. 15. Monitor weather for severe conditions. Discuss severe	15. L
		conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	
	16. Fueling operation	16. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	16. M
	17. Lockout/Tag-out	17. Equipment or circuits that are de-energized shall be rendered inoperative and have tags attached at all points where such equipment or circuits can be energized.	17. H
	18. Electrical work	18. Work done by licensed electricians. Work done in compliance with National Electric Code, EM-385-1-1 (2008), and the contract specifications	18. H
5. Construction of haul/ access road	Struck by/against heavy equipment	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use	1. M

damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer. 4. Exposure to high noise 4. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program. 5. Exposure to high/low ambient 5. Discuss signs/symptoms of heat/cold stress. Conduct to review the stress of the heart for the heart fo	2.	Chemical spill Exposed to vehicle traffic	safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 3. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic co	2.		
hearing conservation program. 5. Exposure to high/low ambient 5. Discuss signs/symptoms of heat/cold stress. Conduct 5. M	4.	Exposure to high noise	condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer. 4. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	4.	L	
I TAMPARATURA I PARIANO COTATU PROTECTION I MARIA TORRE IL MARIA T	5.	Exposure to high/low ambient temperatures	hearing conservation program.	5.	M	1

		place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers			
6.	Flying Debris	periodically throughout the workday. 6. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear	6.		
7.	Falls from elevation	appropriate PPE (i.e., Safety glasses/goggles/faceshield). 7. Personnel/workers shall not ride on moving equipment unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	7.	М	
8.	Walking/Working surface	8. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	8.	M	
9.	Fire/Explosion	9. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	9.	M	
10	. Severe Weather	10. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	10.	L	
11	. Hand/Power tools	11. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	11.	M	
12	. Fueling operation	12. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion	12.	M	

	13. Biological (i.e., Plants, Insects, Snake, and Infectious Material)	away from igneed to be be contact with good house and ensure materials to times. Keep minimize pochemical us procedures, Spill Control review/upda SSHO. If an identified, an and Local resultant and Local resultant and Local resultant and clothing Wasp/Bee's brush clearing wash of any increased conscare animal for biological nests or like repellants in for ticks perifor nests. Presidences. Use activities. Use activities. Use activities. Use activities. Use the constant of th	sect nest, spiders and spider webs, or likely nakes and use tick insect repellant. Check skin for tick periodically throughout the day. Use pray for nests. Use Poison Ivy Barrier cream in a activities. Use cool water and mild soap to oils. (Hot water opens skin pores, which allows ontact with the irritating oils.). Use loud sounds to als. Do NOT approach animals. Survey the area I hazards before commencing work. Avoid insect ly habitats of snakes. Use appropriate insect ly habitats of snakes. Use appropriate insect le., DEET for the insects. Check skin and clothing odically throughout the day. Use wasp/bee spray otect bare skin from poison ivy by wearing long the Poison Ivy Barrier cream in brush clearing se cool water and mild soap to wash off any oils. Opens skin pores, which allows increased contact	13. M
Equipment to be Used	Training Requirements/Comp Qualified Personnel nam		Inspection Requirements	
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Tracked excavator Dump Trucks	oots, Hardhat, Hi visibility clothing (Class II eflective apparel required when exposed to ublic vehicle traffic) Valkie Talkie Radios Tracked excavator person for the following: Respiratory Protection Program Hazardous Communication Program Confined Space Program		Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles:	

Bull dozer Mules/gators Misc. Hand tools (shovels, rakes, etc.) Chainsaw (Workers will be required to wear a hardhat, faceshield, safety glasses, hearing protection, gloves, and chaps while operating the chainsaw)	competent or qualified person for the following: Excavations General Operations Site Specific: 1. OSHA HAZWOPER 2. HTRW activity training 3. Site specific 4. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 5. Hazard communication Supervisory Personnel:	 Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: Before equipment is placed in use it will be inspected and tested by a competent person. Inspections and tests will be done in accordance with manufacturer's instructions. All equipment will be inspected daily when in use by the operator. Inspections and tests will be documented and records will be maintained at the site.
	 OSHA supervisor's training Motor Vehicle: Operators shall hold a valid license for the type and class of vehicle they are operating. Heavy Equipment: Trained and qualified operators. Equipment General: Employees will be qualified and trained to operate or service mechanical equipment. 	Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.



Activity/Work Task: Clearing and Gr	ubbing	Overall Risk Assessment Code (RAC) (Use highest code)					M	
Project Location: South Plainfield, N	ew Jersey	Risk Assessment Code (RAC) Matrix						•
Contract Number: W912DQ-10-D-30	06 TASK ORDER : CF02	Carra			F	Probability	y	
Date Prepared: May 23, 2012		Seve	rity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung	/ Corporate Safety	Catastr		E	E	Н	Н	M
Reviewed by (Name/Title): Eric Tsch	udi/SSHO	Critic Marg	nal	H	M	H M	M L	Ŀ
Notes: (Field Notes, Review Comments, etc.	.)	Neglig Step 1: Review eac	•	M entified safety	"Controls" ar	nd determine RAC	(See above)	-
		"Probability" is the identified as: Frequ	likelihood to cause ent, Likely, Occasio	an incident, n	ear miss, or a r Unlikely.	ccident and	RAC (Chart
		"Severity" is the o	itcome/degree if an	incident, near	r miss, or acci	dent did le	= Extremely	High Risk
		Step 2: Identify the "Hazard" on AHA.					I = Moderate = Low Risk	Risk
Job Steps	Hazards			Controls				RAC
Pre-job set up	 Emergency Respons Heavy equipment ins Hand tool inspection 	spection 2	 an emergency 2. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment daily. 3. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. 					2. L 3. L
2. Plant installation	1. Biological (i.e., Plant Snake, and Infectiou	Is Material)	1. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick			snakes and use tick insect repellant. Check skin g for tick periodically throughout the day. Use spray for nests. Use Poison Ivy Barrier cream in ring activities. Use cool water and mild soap to y oils. (Hot water opens skin pores, which allows contact with the irritating oils.). Use loud sounds to als. Do NOT approach animals. Survey the area al hazards before commencing work. Avoid insect ely habitats of snakes. Use appropriate insect .e., DEET to protect skin from insects and Repel		1. M

7. Flying Debris	periodically throughout the workday. 7. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear	7. M
	core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers	
Exposure to high/low ambient temperatures	6. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor	6. M
5. Exposure to high noise	evenly. 5. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Hearing protection required for operator of skid steer and workers near skid steer.	5. M
Handling heavy objects/ material	correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment. 4. Use proper lifting techniques. Utilize proper hoisting/material handling techniques and/or equipment. Use buddy system for heavy, awkward loads. Distribute loads	4. M
Contact with sharp objects/material	chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 3. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body.	3. M
2. Chemical spill	throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper	2. M

	appropriate PPE (i.e., Safety glasses/goggles/face shield).	
8. Hand/Power tools	8. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all sofety devices and appare they are functioning.	8. M
9. Walking/Working surface	of all safety devices and ensure they are functioning. 9. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to	9. M
10. Hand injuries from pinch points	essential personnel. Wear steal toe/composite boots. 10. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	10. M
11. Severe Weather	11. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	11. L
	conditions, etc.)	
12. Fueling operation	12. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State,	12. M
13. Auger operation(Rotating Parts)	and Local regulations. 13. Employees kept out of area of rotating equipment. No loose clothing permitted. Use shovel to clean skid steer	13.M
14. Fertilizer placement	mounted auger, not hands. 14. Review of MSDS. Proper PPE shall be worn. All manufacturer safety precautions to be followed.	14. L

Equipment to be Used	Training Requirements/Competent of Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, W boots, Hardhat, Hi visibility clothing (Clas reflective apparel required when exposed public vehicle traffic) Walkie Talkie Radios Misc. Hand tools (shoves, rakes, utility kr pliers, etc.) Fire extinguisher	s II Competent person for the following: □ Plantings installation Site Specific:	 Site Inspection: Daily inspection by Health and Safety Officer Motor Vehicles: Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. All over-the-road vehicles will have the proper state-required inspections. Operators shall hold a valid license for the type and class of vehicle they are operating. Equipment: Before equipment is placed in use it will be inspected and tested by a competent person. Inspections and tests will be done in accordance with manufacturer's instructions. All equipment will be inspected daily when in use by the operator. Inspections and tests will be documented and records will be maintained at the site. Employees will be qualified and trained to operate or service mechanical equipment. Personal Protective Equipment (PPE): Disposal PPE shall be inspected before each use. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

Activity/Work Task: Clearing and Grubbing		Overa	I Risk Assess	sment Code	(RAC)	(Use highest	t code)	М	
Project Location: South Plainfield, New	Jersey		Risk Assessment Code (RAC) Matrix						·
Contract Number: W912DQ-10-D-3006	TASK O	RDER : CF02	Con	.au!4		F	Probability	/	
Date Prepared: May 23, 2012			- Sev	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung/ C	orporate	Safety		strophic	E	Е	Н	Н	M
Reviewed by (Name/Title): Eric Tschudi	/SSHO		Ma	itical rginal	H M	M	H M	M L	L
Notes: (Field Notes, Review Comments, etc.)			İ	ligible each "Hazard" with		'Controls " ar	nd determine RAC	(See above)	<u> </u>
			"Probability" is to identified as: Fre	the likelihood to cau quent, Likely, Occas	se an incident, ne sional, Seldom or	ear miss, or a Unlikely.	ccident and	RAC	Chart
			occur and identif	outcome/degree if ied as: Catastrophic	c, Critical, Margina	al, or Negligib	le H	= Extremely = High Risk	
			Step 2: Identify t "Hazard" on AHA	the RAC (Probability Annotate the ove	y/Severity) as E, I rall highest RAC :	H, M, or L for at the top of <i>A</i>		I = Moderate = Low Risk	Risk
Job Steps		Hazards			Controls				RAC
	2.	Hand tool inspection	1	an emergency 2. Ensure pers tools before ea of all safety de	sonnel are trai ach use. Use	correct too	for the job. Ma		2. L
2.Survey activities	1.	equipment		1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or			use. s. ROPS nent ry. Use tt. Ground driver's eersonnel toved stance. oNE (1) ast 10 feet bower line	1. M	

		Lateral descriptions with six at least and a complete deal Of the Complete deal of the Comple	
		stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	
2.	Exposed to vehicle traffic	2. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for	2. M
		any work where work is performed on/adjacent to an active	
		street. Pedestrian traffic must be controlled. Flaggers/spotters	
		assigned where necessary, by the Superintendent, to	
		specifically control the flow of traffic in and out of the site.	
		Traffic control flaggers must be courteous, professional, and	
		alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and	
		on site equipment. Drivers are to follow the direction of	
		flaggers/spotters. Drivers are required to wear safety reflective	
		vests whenever they are outside their vehicle. Drivers shall	
		obey all safe-driving regulations, including wearing seat belts.	
		Observe speed limit of 5 miles per hour onsite or other posted	
		speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
	Everage to bigh pairs	the superintendent and safety officer.	2.1
3.	Exposure to high noise	3. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on	3. L
		hearing conservation program.	
4.	Exposure to high/low ambient	4. Discuss signs/symptoms of heat/cold stress. Conduct	4. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
5.	Flying Debris	5. Ensure guards are installed and working on	5. L
		tools/equipment. Initiate dust control measures. Wear	
		appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
6.	Walking/Working surface	6. Good housekeeping practices. Keep walkways and work	6. M

·		,	
7.	Excavation Cave In	areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. 7. Barricade open excavations. Be aware of cave in potential. Competent person on site during activity. Contact local mark out. Authority to identify and mark underground utilities. Keep vehicles/equipment at sufficient distance from edge of excavation. Maintain proper slope for soil classification. Maintain spoils two feet from edge of excavation. Perform daily excavation/trench inspection. Provide access/egress to excavation. When an unknown hazard has been encountered, work will stop until hazards and controls are identified and in place.	7. M
8.	Severe Weather	8. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	8. L
9.	Hand/Power tools	9. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	9. L
10.	Inhalation/contact with hazardous material	10. Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	10. M
11.	Biological (i.e., Plants, Insects, Snake, and Infectious Material)	11. Avoid insect nest, spiders and spider webs, or likely habitats of snakes and use tick insect repellant. Check skin and clothing for tick periodically throughout the day. Use Wasp/Bee spray for nests. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash of any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils.). Use loud sounds to scare animals. Do NOT approach animals. Survey the area for biological hazards before commencing work. Avoid insect nests or likely habitats of snakes. Use appropriate insect repellants i.e., DEET to protect skin from insects and Repel Permanone (permethrins) or equivalent for clothing in tick infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	11. M
12.	Working in water	12. Safe wading depth will be considered to be 3.0 feet. Additionally, the safe wading depth will be adjusted	12. M

	the water. To system in every while wading may cause flash flooding to personner the depth more 10 ft2/s. If a PFD while it boat.	based upon the depth, location and flow/force of hrow ring with 75 ft of rope available. Buddy ffect. Always wear a Coast guard approved PFD g. Be aware of depressions, holes, or loose footing a fall. Be aware of flow conditions; leave the area if ag or inclement weather conditions present hazards el. Do not attempt wading in creeks/rivers where multiplied by the velocity is equal to or greater than a boat is used always wear a Coast guard approved in boat. Do not exceed weight or capacity limit of
Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II	The SSHO (Eric Tschudi) shall be the Competent person for the following:	Site Inspection:
reflective apparel required when exposed to public vehicle traffic)	 □ Fall Protection Program □ Respiratory Protection Program □ Hazardous Communication Program 	Daily inspection by Health and Safety Officer
Modified Level D PPE to include: Hardhat, safety glasses (not store brand	□ Confined Space Program	Motor Vehicles:
sunglasses), Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic), steel toe-work boots, (NO shorts, Tank Tops), Tyvek coveralls, and	The Superintendent (Perry Novak) shall be the competent or qualified person for the following: ☐ Excavations ☐ General Operations	Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition.
inner and outer nitrile gloves.	Site Specific:	Personal Protective Equipment (PPE):
Walkie Talkie Radios Mules/gators Misc. Hand tools (shovels, rakes, hammer, etc.) Survey equipment	 OSHA HAZWOPER HTRW activity training Site specific Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. Hazard communication 	 Disposal PPE shall be inspected before each use. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.
	Supervisory Personnel:	
	OSHA supervisor's training	
	Motor Vehicle:	
	Operators shall hold a valid license for the type and class of vehicle they are operating.	

Activity/Work Task: Storm Water Poll	ution Prevention Measures	Overall	Risk Assessr	ment Code	e (RAC) ((Use highes	t code)	M
Project Location: South Plainfield, Ne	w Jersey		Risk Ass	sessmen	t Code	(RAC) Ma	trix	•
Contract Number: W912DQ-10-D-30	06 TASK ORDER : CF02	Probability						
Date Prepared: May 22, 2012		Seve	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung	Corporate Safety	Catast Criti		E E	E H	H	H M	M
Reviewed by (Name/Title): Eric Tsch	udi/SSHO	Marg Negli	jinal	H M	M	M	L	L
Notes: (Field Notes, Review Comments, etc)		ch " Hazard " with id		"Controls" a	nd determine RAC	(See above)	_
		"Probability" is the identified as: Frequent	e likelihood to cause uent, Likely, Occasio	e an incident, n onal, Seldom o	ear miss, or a r Unlikely.	ccident and	RAC (Chart
			outcome/degree if and as: Catastrophic,				= Extremely I = High Risk	High Risk
			e RAC (Probability/S Annotate the overa				I = Moderate = Low Risk	Risk
Job Steps	Hazards				ontrols	•		RAC
1. Pre-job set up	Emergency Respons Heavy equipment ins Hand tool inspection	spection	1. Rallying point an emergency 2. Only qualified heavy equipment use. Equipped to ROPS are requipment daily 3. Ensure personal tools before each of all safety device.	d employees int. Equipme with operabl iired on all h y. onnel are tra ch use. Use	s will be aut int properly e backup a eavy equiprined on spe correct too	horized to ope secured when larms and sea ment. Inspect ecific tools. Ins I for the job. M	erate not in t belts. spect ake use	2. L 3. L
2. Coir Log installation	1. Biological (i.e., Plant Snake, and Infection	us Material)	habitats of snak and clothing for Wasp/Bee spra brush clearing a wash of any oils increased conta scare animals. for biological ha nests or likely h repellants i.e., [Permanone (pe	y devices and ensure they are functioning. sect nest, spiders and spider webs, or likely snakes and use tick insect repellant. Check skin ng for tick periodically throughout the day. Use spray for nests. Use Poison Ivy Barrier cream in ring activities. Use cool water and mild soap to ny oils. (Hot water opens skin pores, which allows contact with the irritating oils.). Use loud sounds to hals. Do NOT approach animals. Survey the area cal hazards before commencing work. Avoid insect kely habitats of snakes. Use appropriate insect i.e., DEET to protect skin from insects and Repel e (permethrins) or equivalent for clothing in tick reas. Check skin and clothing for ticks periodically		ick skin Use eam in ap to a allows ounds to ne area id insect sect Repel n tick	1. M	

7. Flying Debris	periodically throughout the workday. 7. Ensure guards are installed and working on tools/equipment. Initiate dust control measures. Wear	7. M
	core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers	
Exposure to high/low ambient temperatures	6. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor	6. M
5. Exposure to high noise	evenly. 5. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Hearing protection required for operator of skid steer and workers near skid steer.	5. M
Handling heavy objects/ material	correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment. 4. Use proper lifting techniques. Utilize proper hoisting/material handling techniques and/or equipment. Use buddy system for heavy, awkward loads. Distribute loads	4. M
Contact with sharp objects/material	chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used. 3. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled	3. M
2. Chemical spill	throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper	2. M

1	_	
8. Hand/Power tools	appropriate PPE (i.e., Safety glasses/goggles/face shield). 8. Ensure personnel are trained on specific tools. Inspect tools before each use. Use correct tool for the job. Make use of all safety devices and ensure they are functioning.	8. M
9. Walking/Working surface	9. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to	9. M
10. Hand injuries from pinch points	essential personnel. Wear steal toe/composite boots. 10. Ensure site personnel utilize appropriate hand protection. Avoid placing hands in tight spaces while moving materials.	10. M
11. Severe Weather	11. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	11. L
12. Fueling operation	conditions, etc.) 12. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials on hand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	12. M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II reflective apparel required when exposed to public vehicle traffic) Walkie Talkie Radios Misc. Hand tools (shoves, rakes, utility knives, pliers, etc.) Fire extinguisher Front end loader Tracked excavator Gators	Qualified Personnel name(s) The Superintendent (Perry Novak) shall be the Competent person for the following: □ Plantings installation Site Specific: 1. Site specific 2. Daily tailgate safety meetings at which the affected employees can voice their concerns and/or recommendations of the site-specific training requirements. 3. Hazard communication. 4. Review of this AHA and MSDS. Heavy Equipment: 1. Trained and qualified operators. Equipment General: 1. All required safety equipment must be operational before using the heavy equipment.	Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. 2. All over-the-road vehicles will have the proper state-required inspections. 3. Operators shall hold a valid license for the type and class of vehicle they are operating. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records will be maintained at the site. 5. Employees will be qualified and trained to operate or service mechanical equipment. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored
		properly before reuse.

Activity/Work Task: Transport/hoisting equipment	with hydra			l Risk Assess	`	•	(Use highes	t code)	Н
Project Location: South Plainfield, New	Project Location: South Plainfield, New Jersey		Risk Assessment Code (RAC) Matrix						
Contract Number: W912DQ-10-D-3006	TASK O	RDER : CF02				F	Probability	У	
Date Prepared: May 22, 2012	Date Prepared: May 22, 2012		Sev	erity	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jung/C	orporate	Safety		trophic tical	E E	E	H	H M	M
Reviewed by (Name/Title): Eric Tschuc	li/SSHO		Mai	ginal ligible	H	M	M	L	È
Notes: (Field Notes, Review Comments, etc.)			1	ach " Hazard" with i		" Controls " ar	nd determine RAC	(See above)	
				he likelihood to cau quent, Likely, Occas			ccident and	RAC (Chart
				outcome/degree if ed as: Catastrophic				= Extremely I = High Risk	High Risk
				he RAC (Probability Annotate the over				I = Moderate = Low Risk	Risk
Job Steps		Hazards	1		C	ontrols			RAC
1. Pre-job set up	1. 2. 3.		spection	 Rallying point an emergency Only qualified heavy equipments. Equipped ROPS are requipment dail Ensure perstools before ear of all safety de 	ed employees ent. Equipme with operabl uired on all he ly. sonnel are tra ach use. Use evices and en	s will be aut nt properly e backup a eavy equipo ined on spe correct tool sure they a	horized to ope secured when larms and seament. Inspect ecific tools. Instruction the job. Mare functioning.	erate not in t belts. spect ake use	1. L 2. L 3. L
2. Rigging	1.	Biological (i.e., Plant Snake, and Infection		1. Avoid insect habitats of sna and clothing for Wasp/Bee spray brush clearing wash of any oi increased contact scare animals. for biological habitation nests or likely repellants i.e., Permanone (pinfested areas	akes and use or tick periodic ay for nests. I activities. Use Is. (Hot water tact with the interpretal periodical periodi	tick insect in cally through Use Poison se cool water opens ski rritating oils proach anire commenciakes. Use tect skin frour equivalen	repellant. Che hout the day. It is a livy Barrier creer and mild so n pores, which s.). Use loud so mals. Survey the sing work. Avoid appropriate insome insects and it for clothing in	ick skin Use eam in ap to a allows ounds to ne area id insect sect Repel n tick	1. M

Struck by/against heavy equipment	throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground	2. M
	personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	
3. Rigging	3. Inspect all rigging prior to use. Defective rigging to be taken out of service and removed from site. Proper use of rigging including positive latching devices to secure the load and rigging. Tag lines shall be used to control load. Hooks, eyes, slings, chains or other rigging shall not be attached to or hung from the teeth of a bucket during the transporting or hoisting of a load.	3. M
4. Handling heavy objects/ material	4. Use proper lifting techniques. Utilize proper hoisting/material handling techniques and/or equipment. Use buddy system for heavy, awkward loads. Distribute loads evenly.	4. M
5. Exposed to vehicle traffic	5. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of	5. M

		flaggers/spotters. Drivers are required to wear safety reflective	
		vests whenever they are outside their vehicle. Drivers shall	
		obey all safe-driving regulations, including wearing seat belts.	
		Observe speed limit of 5 miles per hour onsite or other posted	
		speeds limits. Site vehicles and trucks will be equipped with	
		backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
		the superintendent and safety officer.	
6.	Exposure to high noise	6. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	6. L
	,	personnel on use of hearing protection. Employees on	
		hearing conservation program.	
7.	Exposure to high/low ambient	7. Discuss signs/symptoms of heat/cold stress. Conduct	7. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
	temperatures	place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
8.	Flying Debris	8. Ensure guards are installed and working on	8. M
		tools/equipment. Initiate dust control measures. Wear	
		appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
9.	Equipment operator	9. Written proof of qualifications of equipment operators,	9. L
		riggers, and others involved in transporting and hoisting	
		operations. Only qualified employees will be authorized to	
		operate heavy equipment.	
10	Walking/Working surface	10. Good housekeeping practices. Keep walkways and work	10. M
		areas clear of hoses, cords, and clutter. Restrict site to	
		essential personnel. Wear steal toe/composite boots.	
11	Hand injuries from pinch points	11. Ensure site personnel utilize appropriate hand protection.	11. H
	, , , , , ,	Avoid placing hands in tight spaces while moving materials.	
12	Falls from elevation	12. Personnel/workers shall not ride on moving equipment	12. M
		unless a seat with seatbelt is provided. Maintain three points	
		of contact when climbing on or off equipment. Fall protection	
		required when working from heights greater than 6 feet.	
		Workers shall use the proper sized ladders or stairs to climb to	
		ANOLUCIO SITALI USE THE PLOPEL SIZEU IAUUEIS OF STAILS TO CIIIIID TO	

	13. Fire/Explosion	a different height. 13. Fire extinguisher inspected and in place. It may be necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in	13. M
	14. Severe Weather	the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected. 14. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	14. L
	15. Fueling operation	15. All equipment will be shut down prior to fueling. Do not stage equipment in areas of high vegetation. Observe site smoking policies. Do not smoke during fueling operations. NOTE: Smoking is never permitted while in the Exclusion Zone! Fueling will be accomplished in well-ventilated areas away from ignition sources. Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank. Practice good housekeeping habits. Maintain spill response equipment, and ensure that the spill cleanup materials are compatible with materials to be cleaned up. Practice spill prevention at all times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper chemical use and storage. Refer to MSDS for proper handling procedures, disposal, cleanup and PPE requirements. Keep a Spill Control and Countermeasures Plan in place, and review/update it periodically. Report all spills/leaks to the SSHO. If any spills/leaks occur, they will be contained, identified, and disposed of in accordance with Federal, State, and Local regulations.	15. M
3. Lifting of load	Struck by/against heavy equipment	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe	1. M

2.	Chemical spill	distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off	2. M
		equipment when fuelling. Report all spills to the SSHO.	
		Subcontractors to supply MSDSs for chemicals to be used.	
3.	Exposed to vehicle traffic	throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	3. M
4.	Exposure to high noise	4. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	4. L
5.	Exposure to high/low ambient temperatures	5. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for	5. M

6. Flying Debris	symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday. 6. Ensure guards are installed and working on	6. M
7. Falls from elevation	tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield). 7. Personnel/workers shall not ride on moving equipment	7. M
7. Pails IIOIII elevation	unless a seat with seatbelt is provided. Maintain three points of contact when climbing on or off equipment. Fall protection required when working from heights greater than 6 feet. Workers shall use the proper sized ladders or stairs to climb to a different height.	7. W
8. Walking/Working surface	8. Insure the stability of surfaces beneath equipment. Good housekeeping practices. Keep walkways and work areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots.	8. M
 Operational testing Fire/Explosion 	9. An operational test with the selected hydraulic excavating equipment will be performed. The test shall consist of a demonstration that the load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed. The test shall be representative of the complete cycle of the proposed transporting or hoisting operation. The test load shall be equivalent to the maximum anticipated load, but shall not exceed 100% of the manufacturer's load rating capacity of equipment. All procedures will be in accordance with the equipment manufacturers operating manual. 10. Fire extinguisher inspected and in place. It may be	9. H
	necessary to wet down work area when combustible materiel cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame Permit) from SSHO for any activity that involves welding radiation, flashes, sparks, molten metal, and slag. Follow hot work permit procedures. No such activity will be permitted in the presence of explosive atmospheres. Use good housekeeping practices. All ignition sources shall be eliminated or protected.	
11. Severe Weather	11. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	11. L

12. H
14.11
13. M
14. H
15. H
16. H
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Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Wo boots, Hardhat, Hi visibility clothing (Class reflective apparel required when exposed public vehicle traffic) Modified Level D PPE to include: Hardhat, face shield, safety glasses (not storand sunglasses), Hi visibility clothing (Clill reflective apparel required when expose public vehicle traffic), steel toe-work boots (NO shorts, Tank Tops), Tyvek coveralls, a inner and outer nitrile gloves. Walkie Talkie Radios Tracked excavator Misc. Hand tools (shovels, rakes, etc.) Ladders Slings and other lifting equipment Tag lines Barricade devices	The SSHO (Eric Tschudi) shall be the Competent person for the following: Fall Protection Program Respiratory Protection Program Hazardous Communication Program Confined Space Program The Superintendent (Perry Novak) shall be the competent or qualified person for the following: Excavations	Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records will be maintained at the site. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.
	Equipment General:	

Employees will be qualified and trained to operate or service mechanical equipment.	



Activity Hazard Analysis (AHA)

Activity/Work Task: Transportation & I Material	Disposal of	Contaminated	Overa	II Risk Assess	sment Code	(RAC)	(Use highe	st code)	М
Project Location: South Plainfield, New Jersey		Risk Assessment Code (RAC) Matrix							
Contract Number: W912DQ-10-D-300	6 TASK O	RDER : CF02	Sov	erity			Probabili	ty	
Date Prepared: May 22, 2012			- Sev	erity	Frequent	Likely	Occasiona	al Seldom	Unlikely
Prepared by (Name/Title): Paul Jung/0	Corporate	Safety		strophic itical	E E	E H	H	H	M
Reviewed by (Name/Title): Eric Tschu	di/SSHO		Ma	rginal ligible	H M	M L	M L	L	L
Notes: (Field Notes, Review Comments, etc.)			Step 1: Review 6	each "Hazard" with	identified safety	"Controls" a	nd determine RA	AC (See above)	
				the likelihood to cau quent, Likely, Occas			accident and	RAC	Chart
			"Severity" is the occur and identif	outcome/degree if ied as: Catastrophic	an incident, near , Critical, Margin	r miss, or acci al, or Negligib	ident did ble	E = Extremely H = High Risk	
				the RAC (Probability A. Annotate the over				M = Moderate L = Low Risk	Risk
Job Steps		Hazards	Hazara on Ariz	Amotate the over		controls	-11 I/-1.	L - LOW INISK	RAC
1. Pre-job set up	1.	Emergency Respons		1. Rallying poi an emergency	nts. Notificati	on of prope			1. L
	3.	Heavy equipment in		2. Only qualified heavy equipment use. Equipped ROPS are requipment dai 3. Ensure perstools before early of all safety definition.	ent. Equipme with operabluired on all holy. sonnel are tra ach use. Use	nt properly e backup a eavy equip ined on sp correct too	secured whe larms and se ment. Inspec ecific tools. I I for the job. I	en not in at belts. t nspect Make use	2. L 3. L
2. Loading of truck	1.	Biological (i.e., Plant Snake, and Infection		1. Avoid insect habitats of sna and clothing for Wasp/Bee spr brush clearing wash of any oi increased conscare animals for biological hoests or likely repellants i.e., Permanone (pinfested areas	akes and use or tick periodic ay for nests. I activities. Usils. (Hot wate tact with the interpretation Do NOT appropriates of small tacts of	tick insect cally throug Use Poisor se cool water opens sk rritating oils proach ani e commendakes. Use tect skin from equivaler	repellant. Chyhout the day now Barrier of ter and mild sin pores, which in pores, which is.). Use loud mals. Survey cing work. Avappropriate iom insects arnt for clothing	neck skin . Use cream in oap to ch allows sounds to the area oid insect nsect id Repel in tick	1. M

		throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils).	
2.	Struck by/against heavy equipment	2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of	2. M
		swing radius of equipment. For stationary equipment-rope off or guard swing radius.	
3.	Chemical spill	3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	3. M
4.	Contact with sharp objects/material	4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	4. L
5.	Truck loading	5. Truck to be turned off before entering the bed to place liner. A ladder is to be used to access the truck bed. A spotter shall be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps.	5. M

6.	Exposed to vehicle traffic	loading. 6. Traffic in and out of the site must be maintained and orderly	6. M
0.	Exposed to verticle traffic	throughout the workday as needed. Traffic control required for	O. IVI
		any work where work is performed on/adjacent to an active	
		street. Pedestrian traffic must be controlled. Flaggers/spotters	
		assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site.	
		Traffic control flaggers must be courteous, professional, and	
		alert at all times. Ground crew and flagger/spotters shall use	
		safety reflective vest when working around active traffic and	
		on site equipment. Drivers are to follow the direction of	
		flaggers/spotters. Drivers are required to wear safety reflective	
		vests whenever they are outside their vehicle. Drivers shall	
		obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted	
		speeds limits. Site vehicles and trucks will be equipped with	
		backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
7	Exposure to high noise	the superintendent and safety officer. 7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	7. L
''	Exposure to high hoise	personnel on use of hearing protection. Employees on	/. L
		hearing conservation program.	
8.	Exposure to high/low ambient	8. Discuss signs/symptoms of heat/cold stress. Conduct	8. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
9.	Flying Debris	periodically throughout the workday. 9. Ensure guards are installed and working on	9. M
₁ 9.	I Iyilig Debile		J. IVI
		i loois/edulomeni linillale dusi control measures livear	
		tools/equipment. Initiate dust control measures. Wear appropriate PPE (i.e., Safety glasses/goggles/faceshield).	

	tools before each use. Use correct tool for the job. Make use	
	of all safety devices and ensure they are functioning.	
11. Walking/Working surface	11. Good housekeeping practices. Keep walkways and work	11. M
	areas clear of hoses, cords, and clutter. Restrict site to essential personnel. Wear steal toe/composite boots. During	
	winter, maintain work areas clear of accumulating snow or ice.	
12. Hand injuries from pinch points	12. Ensure site personnel utilize appropriate hand protection.	12. M
12. Flatta injulies from points	Avoid placing hands in tight spaces while moving materials.	12. 10
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment	13. M
	unless a seat with seatbelt is provided. Maintain three points	
	of contact when climbing on or off equipment. Fall protection	
	required when working from heights greater than 6 feet.	
	Workers shall use the proper sized ladders or stairs to climb to	
44 = 4 - 4	a different height.	
14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be	14. M
	necessary to wet down work area when combustible materiel	
	cannot be moved. Fire watch during and 30 minutes after hot work procedures. Obtain Hot Work Permit (Open Flame	
	Permit) from SSHO for any activity that involves welding	
	radiation, flashes, sparks, molten metal, and slag. Follow hot	
	work permit procedures. No such activity will be permitted in	
	the presence of explosive atmospheres. Use good	
	housekeeping practices. All ignition sources shall be	
	eliminated or protected.	
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe	15. L
	conditions with USACE and Superintendents when it poses a	
	hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
16. Fueling operation	conditions, etc.) 16. All equipment will be shut down prior to fueling. Do not	16. M
To. Fuelling operation	stage equipment in areas of high vegetation. Observe site	I O. IVI
	smoking policies. Do not smoke during fueling operations.	
	NOTE: Smoking is never permitted while in the Exclusion	
	Zone! Fueling will be accomplished in well-ventilated areas	
	away from ignition sources. Equipment and fuel tank do not	
	need to be bonded or grounded if the metal nozzle is in	
	contact with the metal of the equipment's fuel tank. Practice	
	good housekeeping habits. Maintain spill response equipment,	
	and ensure that the spill cleanup materials are compatible with	
	materials to be cleaned up. Practice spill prevention at all	
	times. Keep only enough materials onhand for use (to minimize potential amount to spill/leak). Perform proper	
	chemical use and storage. Refer to MSDS for proper handling	
	procedures, disposal, cleanup and PPE requirements. Keep a	
	Spill Control and Countermeasures Plan in place, and	
	review/update it periodically. Report all spills/leaks to the	
	SSHO. If any spills/leaks occur, they will be contained,	

	17. Inhalation/contact with hazardous material	identified, and disposed of in accordance with Federal, State, and Local regulations. 17. Ensure site personnel have the appropriate HAZWOPER, medical clearance and Site Specific training. Follow decontamination procedures. Follow emergency contingency procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity performed.	17. M
3. Weighing/ Manifesting of truck	Struck by/against heavy equipment	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	1. M
	2. Chemical spill	2. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	2. M
	3. Exposed to vehicle traffic	throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall	3. M

		show all cofe driving regulations, including wearing acet halts	
		obey all safe-driving regulations, including wearing seat belts.	
		Observe speed limit of 5 miles per hour onsite or other posted	
		speeds limits. Site vehicles and trucks will be equipped with	
		backup alarms. Signal personnel to use standard traffic control	
		signals. NOTE: When driver is concerned about a location or	
		condition that may cause an incident, injury, or property	
		damage based on their knowledge as a driver and their	
		equipment, the driver is to stop and review the situation with	
		the superintendent and safety officer.	
4.	Exposure to high noise	4. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	4. L
	,	personnel on use of hearing protection. Employees on	
		hearing conservation program.	
5.	Exposure to high/low ambient	5. Discuss signs/symptoms of heat/cold stress. Conduct	5. M
J.	temperatures	periodic safety briefs about heat/cold stress. If work takes	J. W
	temperatures		
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for	
		symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
		periodically throughout the workday.	
6.	Falls from elevation	6. Personnel/workers shall not ride on moving equipment	6. M
		unless a seat with seatbelt is provided. Maintain three points	
		of contact when climbing on or off equipment. Fall protection	
		required when working from heights greater than 6 feet.	
		Workers shall use the proper sized ladders or stairs to climb to	
		a different height.	
_	Malking Marking ourface		7. M
	Walking/Working surface	7. Good housekeeping practices. Keep walkways and work	/ . IVI
		areas clear of hoses, cords, and clutter. Restrict site to	
		essential personnel. Wear steal toe/composite boots. During	
	E: /E .	winter, maintain work areas clear of accumulating snow or ice.	
8.	Fire/Explosion	8. Fire extinguisher inspected and in place. It may be	8. M
		necessary to wet down work area when combustible materiel	
		cannot be moved. Fire watch during and 30 minutes after hot	
		work procedures. Obtain Hot Work Permit (Open Flame	
		Permit) from SSHO for any activity that involves welding	
		radiation, flashes, sparks, molten metal, and slag. Follow hot	
		work permit procedures. No such activity will be permitted in	
		the presence of explosive atmospheres. Use good	
		housekeeping practices. All ignition sources shall be	
		eliminated or protected.	
			<u>I</u>

	9. Severe Weather	9. Monitor weather for severe conditions. Discuss severe conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard conditions, etc.)	9. L
4. Tarping of truck	1. Struck by/against heavy equipment 2. Exposed to vehicle traffic	1. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius. 2. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are required to wear safety reflective vests when very required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal perso	1. M
		damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	
	Exposure to high noise	3. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct	3. L

т			
4	Exposure to high/low ambient	personnel on use of hearing protection. Employees on hearing conservation program. 4. Discuss signs/symptoms of heat/cold stress. Conduct	4. M
	temperatures	periodic safety briefs about heat/cold stress. If work takes	
		place in cold weather: Dress properly and protect exposed	
		skin when performing work outdoors. Workers should have	
		extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor	
		core temperatures of workers periodically throughout the	
		workday. If work takes place in hot weather: Plan activity early	
		in the day (if possible). Dress properly and protect exposed	
		skin when performing work outdoors. Drink plenty of fluids and	
		review the signs and symptoms of heat related illness. Rest as	
		needed. Wear sunscreen and tinted safety glasses. Drink cool	
		liquids as appropriate. Monitor core temperatures of workers	
5	Flying Debris	periodically throughout the workday. 5. Ensure guards are installed and working on	5. L
	Flying Debits	tools/equipment. Initiate dust control measures. Wear	3. L
		appropriate PPE (i.e., Safety glasses/goggles/faceshield).	
6	Walking/Working surface	6. Good housekeeping practices. Keep walkways and work	6. M
		areas clear of hoses, cords, and clutter. Restrict site to	
		essential personnel. Wear steal toe/composite boots. During	
		winter, maintain work areas clear of accumulating snow or ice.	
7	Tarping	7. After the truck is loaded and manifested, the ground	7. M
		personnel will cover the truck bed. The tarp is unfurled by the	
		truck driver. The tarp is secured by a workers standing on an elevated platform. Hold-down straps are reconnected. Once	
		truck exits the loading area, the driver will stop, turn off truck,	
		and inspect truck to assure that the tailgate is closed, the	
		automatic lock is engaged, and hand load locks are dogged	
		off properly. The driver will also check that the truck has the	
		correct placards for the waste being hauled	
8	Severe Weather	8. Monitor weather for severe conditions. Discuss severe	8. M
		conditions with USACE and Superintendents when it poses a hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
		conditions, etc.)	
9	Hand/Power tools	9. Ensure personnel are trained on specific tools. Inspect tools	9. L
		before each use. Use correct tool for the job. Make use of all	0
		safety devices and ensure they are functioning.	
1	D. Inhalation/contact with hazardous	10. Ensure site personnel have the appropriate HAZWOPER,	10. M
	material	medical clearance and Site Specific training. Follow	
		decontamination procedures. Follow emergency contingency	
		procedures. Implement site control areas. Perform real time air monitoring. Wear appropriate PPE for task/activity	
		performed.	
		perioritied.	
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Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, W boots, Hardhat, Hi visibility clothing (Class reflective apparel required when exposed public vehicle traffic) Modified Level D PPE to include: Hardhat, face shield, safety glasses (not shand sunglasses), Hi visibility clothing (Class reflective apparel required when exposed public vehicle traffic), steel toe-work boots (NO shorts, Tank Tops), Tyvek coveralls, inner and outer nitrile gloves. Walkie Talkie Radios Tracked excavator Misc. Hand tools (shovels, rakes, etc.) Ladders Monitoring Instruments (dust monitor) Trucks Hoses	Proceedings of the Superintendent (Perry Novak) shall be the Competent or qualified person for the following: □ Fall Protection Program □ Respiratory Protection Program □ Hazardous Communication Program □ Confined Space Program The Superintendent (Perry Novak) shall be the competent or qualified person for the following: □ Excavations	Inspection Requirements Site Inspection: 1. Daily inspection by Health and Safety Officer Motor Vehicles: 1. Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition. Equipment: 1. Before equipment is placed in use it will be inspected and tested by a competent person. 2. Inspections and tests will be done in accordance with manufacturer's instructions. 3. All equipment will be inspected daily when in use by the operator. 4. Inspections and tests will be documented and records will be maintained at the site. Personal Protective Equipment (PPE): 1. Disposal PPE shall be inspected before each use. 2. Reusable PPE shall be repaired or replaced before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.
	Equipment General: 1. Employees will be qualified and trained to operate or service mechanical equipment.	



Activity Hazard Analysis (AHA)

Activity/Work Task: Site Tree Clear	ring	Overall	Risk Assessmer	nt Code	(RAC)	(Use highes	t code)	Н
Project Location: South Plainfield, New Jersey Contract Number: W912DQ-10-D-3006 TASK ORDER: CF02		Risk Assessment Code (RAC) Matrix						
		Sovo	Severity					
Date Prepared: May 23, 2012	Date Prepared: May 23, 2012			equent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Paul Jur	ng/Corporate Safety	Catastr Critic		E E	E H	H	H	M
Reviewed by (Name/Title): Eric Tse	chudi/SSHO	Margi Neglig	nal	H M	M	M	L L	L
Notes: (Field Notes, Review Comments, e	etc.)	Step 1: Review eac	h "Hazard" with identif	ied safety "	Controls" a	nd determine RAC	C (See above)	
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely. RAC (
		occur and identified	s the outcome/degree if an incident, near miss, or accident did entified as: Catastrophic, Critical, Marginal, or Negligible E = Extremely H = High Risk					
			fy the RAC (Probability/Severity) as E, H, M, or L for each HA. Annotate the overall highest RAC at the top of AHA. M = Moderat L = Low Risk					Risk
Job Steps	Hazards			C	ontrols			RAC
Emergency Response Heavy equipment in the second		spection 2	Rallying points. Nan emergency Conly qualified en heavy equipment. Euse. Equipped with ROPS are required equipment daily. Consumer personners before each upfall safety devices	nployees Equipmer operable on all he el are trail se. Use de s and ens	will be au at properly backup a eavy equip ned on sp correct too sure they a	thorized to ope secured wher larms and sea ment. Inspect ecific tools. In of for the job. Mare functioning	erate n not in at belts. spect lake use	1. L 2. L 3. L
2. Tree Clearing	1. Biological (i.e., Plant Snake, and Infection	us Material) f	Avoid insect nest nabitats of snakes a rand clothing for tick Wasp/Bee spray foor ush clearing active vash of any oils. (Increased contact vascare animals. Do or biological hazar nests or likely habit epellants i.e., DEEPermanone (perme	and use to periodice and use to periodice and the periodic periodi	ick insect ally through Jse Poisor e cool water opens skritating oils proach anile commendakes. Use ect skin fro	repellant. Che phout the day. In ly Barrier crear and mild so in pores, which is.). Use loud so mals. Survey to ing work. Avo appropriate in the propersion of the propersion in sects and propriate and propersion.	eck skin Use eam in pap to h allows ounds to he area pid insect sect d Repel	1. M

		infected areas. Check ekin and elething for ticks periodically	
		infested areas. Check skin and clothing for ticks periodically throughout the day. Use wasp/bee spray for nests. Protect bare skin from poison ivy by wearing long sleeves. Use Poison Ivy Barrier cream in brush clearing activities. Use cool water and mild soap to wash off any oils. (Hot water opens skin pores, which allows increased contact with the irritating oils)	
2.	Struck by/against heavy equipment	pores, which allows increased contact with the irritating oils). 2. Approach equipment within the operators view. Only qualified employees will be authorized to operate heavy equipment. Equipment properly secured when not in use. Equipped with operable backup alarms and seat belts. ROPS are required on all heavy equipment. Inspect equipment regularly. Flaggers/spotters assigned where necessary. Use safety reflective vest when working around equipment. Ground personnel to remain in the drivers view and off to the driver's side, not in front of the vehicle, and to maintain a safe distance. Drivers to maintain visual sight of ground personnel and to stop vehicle if sight is lost. Vehicle not to be moved until ground personnel accounted for and at a safe distance. Vehicle to be shut down if necessary. Hand signal by ONE (1) DESIGINATED worker. Keep heavy equipment at least 10 feet	2. M
		from power lines. Follow EM 385 1-1 guidelines for power line requirements. Restrict pedestrian traffic. Do not walk, work, or stand near equipment being loaded or unloaded. Stay out of swing radius of equipment. For stationary equipment-rope off or guard swing radius.	
3.	Chemical spill	3. Good housekeeping practices. Maintain spill response equipment onsite. Practice spill prevention at all times. Proper chemical storage. Spill control and countermeasures plan in place for spills encountered during work activities. Turn off equipment when fuelling. Report all spills to the SSHO. Subcontractors to supply MSDSs for chemicals to be used.	3. M
	Contact with sharp objects/material	4. Ensure personnel are trained on specific tools. Use correct tool for the job. Make use of all safety devices and ensure they are functioning. Use care with utility knives, replace dull blades, store properly. Wear appropriate PPE (i.e., gloves, long-sleeved shirts and long pants) to avoid scratches. Be aware of body positioning, and ensure that tools are handled correctly. Take care to cut in a direction away from the body. Avoid placing hands in tight places while moving materials. Inspect tools before each use. If tool is not fit for use, report the condition to SSHO, so that it will be taken out of service. If unsure about use of any tool ask SSHO before attempting to utilize tool or equipment.	4. M
5.	Truck loading	5. Truck to be turned off before entering the bed to place liner. A ladder is to be used to access the truck bed. A spotter shall	5. M

T	harmada karataka kutha barata	
6. Exposed to vehicle traffic	be used in lieu of a tie off to hold the ladder while in use. Do not stretch away from the ladder to undo hold down straps. Tyvek is to be worn while lining the truck bed to reduce personal contamination. Once truck bed is loaded, signal excavator operator that truck bed is clear and to commence loading. 6. Traffic in and out of the site must be maintained and orderly throughout the workday as needed. Traffic control required for any work where work is performed on/adjacent to an active street. Pedestrian traffic must be controlled. Flaggers/spotters assigned where necessary, by the Superintendent, to	6. M
	specifically control the flow of traffic in and out of the site. Traffic control flaggers must be courteous, professional, and alert at all times. Ground crew and flagger/spotters shall use safety reflective vest when working around active traffic and on site equipment. Drivers are to follow the direction of flaggers/spotters. Drivers are required to wear safety reflective vests whenever they are outside their vehicle. Drivers shall obey all safe-driving regulations, including wearing seat belts. Observe speed limit of 5 miles per hour onsite or other posted	
	speeds limits. Site vehicles and trucks will be equipped with backup alarms. Signal personnel to use standard traffic control signals. NOTE: When driver is concerned about a location or condition that may cause an incident, injury, or property damage based on their knowledge as a driver and their equipment, the driver is to stop and review the situation with the superintendent and safety officer.	
7. Exposure to high noise	7. Wear appropriate PPE (i.e., ear plugs/muffs). Instruct personnel on use of hearing protection. Employees on hearing conservation program.	7. L
Exposure to high/low ambient temperatures	8. Discuss signs/symptoms of heat/cold stress. Conduct periodic safety briefs about heat/cold stress. If work takes place in cold weather: Dress properly and protect exposed skin when performing work outdoors. Workers should have extra clothing to change into if they get wet. Watch for symptoms of exposure. Drink warm liquids as needed. Monitor core temperatures of workers periodically throughout the workday. If work takes place in hot weather: Plan activity early in the day (if possible). Dress properly and protect exposed skin when performing work outdoors. Drink plenty of fluids and review the signs and symptoms of heat related illness. Rest as needed. Wear sunscreen and tinted safety glasses. Drink cool liquids as appropriate. Monitor core temperatures of workers periodically throughout the workday.	8. M
Flying Debris	9. Ensure guards are installed and working on	9. M

	tools/equipment. Initiate dust control measures. Wear	
40. Hand/Davianta da	appropriate PPE (i.e., Safety glasses/goggles/faceshield).	40.14
10. Hand/Power tools	10. Ensure personnel are trained on specific tools. Inspect	10. M
	tools before each use. Use correct tool for the job. Make use	
	of all safety devices and ensure they are functioning.	
11. Walking/Working surface	11. Good housekeeping practices. Keep walkways and work	11. M
	areas clear of hoses, cords, and clutter. Restrict site to	
	essential personnel. Wear steal toe/composite boots. During	
	winter, maintain work areas clear of accumulating snow or ice.	
12. Hand injuries from pinch points	12. Ensure site personnel utilize appropriate hand protection.	12. M
i i i i i i i i i i i i i i i i i i i	Avoid placing hands in tight spaces while moving materials.	
13. Falls from elevation	13. Personnel/workers shall not ride on moving equipment	13. M
10. Talis from devation	unless a seat with seatbelt is provided. Maintain three points	13. 141
	of contact when climbing on or off equipment. Fall protection	
	required when working from heights greater than 6 feet.	
	Workers shall use the proper sized ladders or stairs to climb to	
	a different height.	
14. Fire/Explosion	14. Fire extinguisher inspected and in place. It may be	14. M
	necessary to wet down work area when combustible materiel	
	cannot be moved. Fire watch during and 30 minutes after hot	
	work procedures. Obtain Hot Work Permit (Open Flame	
	Permit) from SSHO for any activity that involves welding	
	radiation, flashes, sparks, molten metal, and slag. Follow hot	
	work permit procedures. No such activity will be permitted in	
	the presence of explosive atmospheres. Use good	
	housekeeping practices. All ignition sources shall be	
	eliminated or protected.	
15. Severe Weather	15. Monitor weather for severe conditions. Discuss severe	15. L
15. Severe weather		13. L
	conditions with USACE and Superintendents when it poses a	
	hazard to workers (i.e. Hurricanes, Thunderstorm, Blizzard	
	conditions, etc.)	
16. Fueling operation	16. All equipment will be shut down prior to fueling. Do not	16. M
	stage equipment in areas of high vegetation. Observe site	
	smoking policies. Do not smoke during fueling operations.	
	NOTE: Smoking is never permitted while in the Exclusion	
	Zone! Fueling will be accomplished in well-ventilated areas	
	away from ignition sources. Equipment and fuel tank do not	
	need to be bonded or grounded if the metal nozzle is in	
	contact with the metal of the equipment's fuel tank. Practice	
	good housekeeping habits. Maintain spill response equipment,	
	and ensure that the spill cleanup materials are compatible with	
	materials to be cleaned up. Practice spill prevention at all	
	times. Keep only enough materials onhand for use (to	
	minimize potential amount to spill/leak). Perform proper	
	chemical use and storage. Refer to MSDS for proper handling	

·	Training Requirements/Compe	4 4	
	7. Inhalation/contact with hazardous material 17. Inhalation/contact with hazardous material 18. Chainsaw operation nedical clearance and Site Specific training. Follow econtamination procedures. Follow emergency contingency rocedures. Implement site control areas. Perform real time ir monitoring. Wear appropriate PPE for task/activity erformed.	17. M 18. H	

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Level D PPE (Gloves, Safety Glasses, Work boots, Hardhat, Hi visibility clothing (Class II	The SSHO (Eric Tschudi) shall be the Competent person for the following:	Site Inspection:
reflective apparel required when exposed to public vehicle traffic)	 □ Fall Protection Program □ Respiratory Protection Program □ Hazardous Communication Program 	Daily inspection by Health and Safety Officer
Modified Level D PPE to include: Hardhat, face shield, safety glasses (not store	☐ Confined Space Program	
brand sunglasses), Hi visibility clothing (Class II reflective apparel required when exposed to	The Superintendent (Perry Novak) shall be the	Motor Vehicles:
public vehicle traffic, steel toe-work boots, (NO shorts, Tank Tops), Tyvek coveralls, and inner and outer nitrile gloves.	competent or qualified person for the following: ☐ Excavations ☐ General Operations	Before initial use vehicles will be inspected by a mechanic and found to be in a safe operating condition.
Walkie Talkie Radios	Site Specific:	Equipment:
Tracked excavator Misc. Hand tools (shovels, rakes, etc.) Trucks	 OSHA HAZWOPER HTRW activity training Site specific 	Before equipment is placed in use it will be inspected and tested by a competent person.
End dumps (Moxy) Mules/gators	4. Daily tailgate safety meetings at which the	2. Inspections and tests will be done in accordance with

Chainsaw (Workers will be required to wear a
hardhat, faceshield, safety glasses, hearing
protection, gloves, and chaps while operating
the chainsaw)

- affected employees can voice their concerns and/or recommendations of the site-specific training requirements.
- 5. Hazard communication

Supervisory Personnel:

1. OSHA supervisor's training

Motor Vehicle:

 Operators shall hold a valid license for the type and class of vehicle they are operating.

Heavy Equipment:

1. Trained and qualified operators.

Equipment General:

1. Employees will be qualified and trained to operate or service mechanical equipment

- manufacturer's instructions.
- 3. All equipment will be inspected daily when in use by the operator.
- 4. Inspections and tests will be documented and records will be maintained at the site.

Personal Protective Equipment (PPE):

- 1. Disposal PPE shall be inspected before each use.
- 2. Reusable PPE shall be inspected before use. Any defective PPE shall be repaired or replaced before use. All reusable PPE shall be decontaminated and stored properly before reuse.

Appendix F

Respiratory Protection Program



RESPIRATORY PROTECTION PROGRAM

Prepared by:

Sevenson Environmental Services, Inc. Niagara Falls, NY



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1.0 Methods

The Safety Officer will review product Material Safety Data Sheets as well as monitor for the contaminates of concern at the site to determine the need for respiratory protection. This review will include the intended use for products brought onto the site as well as the remediation activities that have the potential to exposure workers at or above established action levels at the site.

2.0 Procedure for Selection of Respirators

Respiratory protection utilized to prevent exposures to airborne workplace hazards will only be used when accepted engineering controls are not feasible. Administrative controls (i.e., worker rotation) will not be considered an accepted control measure to reduce personnel exposures. The Lipari project utilizes a community application for its use of respiratory protective equipment thereby avoiding the assignment of a personal respirator to each project employee. In so doing, respirator care and maintenance is assured by the project SSHO. However, in instances where respirators would be required for extended periods, the SSHO may elect to assign project employees personal respirators and, in so doing, supervise the care and maintenance of issued equipment.

Sevenson will select and provide respiratory protection based on the respiratory hazards to which its employees are exposed. Potential atmospheric hazards associated with nonroutine activities performed shall be identified and assessed in separate Activity Hazard Analyses. Additional performance considerations including cleaning, inspection, proper disassembly and assembly, and any other workplace and/or user factors that affect respirator reliability shall be identified and communicated to project staff during training sessions conducted annually or when deficiencies are observed by the SSHO. Sevenson will only issue respiratory protection that bears NIOSH approval.

All respiratory protection used by Sevenson personnel will be selected in accordance with procedures outlined in the NIOSH Respirator Decision Logic (May 1987), 29 CFR 1926.1101 (Table 1), and 29 CFR 1926.62 (Table 1). Selection will be based on the following criteria:

- The nature of the contaminants (gas, vapor, dust, mist, or fume);
- The warning properties of the known or suspected contaminants;
- Applicable exposure limits published by OSHA, ACGIH, and NIOSH;
- The potential for exposure to workplace atmospheres which may be immediately dangerous to life or health (IDLH);
- Qualitative estimates of airborne contaminant concentrations;
- The results of air monitoring; and
- The nature of the work being performed for which respiratory protection is being required.

Potential activities performed on the project site that may require respiratory protection include:

- Handling slurry wall dry product;
- Soil Vapor Extraction Well tie ins.

Use of respiratory protection shall be based upon task analysis, the results of air monitoring as determined by real time instrumentation, or both.

3.0 Medical Evaluations

All personnel whose job duties require, or may require the use respiratory protection, must successfully pass a pulmonary function test (PFT) and physical exam conducted by an occupational physician approved by Sevenson's Medical Consultant. The Medical Consultant shall, upon successful completion of the medical exam and PFT, issue a written *Health Status Report* approving the use respiratory equipment. The *Health Status Report* shall include the telephone, email, and physical address as well as the printed name and signature of the Medical Consultant issuing the opinion. The *Health Status Report* shall also state the date of the exam and the date the clearance expires. The PFT test is part of the Sevenson medical surveillance program and will be repeated on an annual basis. The *Health Status Report* that contains the physician's written approvals for each Sevenson employee using respiratory equipment is maintained by the SSHO in the employee's safety and health file and may be reviewed in the site safety office.

Any physical problems associated with respirator use during the project will be noted in the employee's medical file; such information will be forwarded to the Sevenson Medical Consultant upon approval by the Health and Safety Manager.

Additional medical evaluations shall be provided when:

- An employee reports medical signs or symptoms that are related to the ability to use a respirator
- A supervisor or the Safety Officer informs the employer that an employee needs to be reevaluated
- Information from the respiratory protection program, including observations made during the fit testing and program evaluation, indicates a need for employee reevaluation
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee
- It has been more than 12 months since the last medical exam

4.0 Fit Testing Procedures for Tight-Fitting Respirators

All personnel required to use respiratory protection by their job tasks must undergo a qualitative fit test on an annual basis (no more than one year may elapse between fit tests). Fit testing will also be required if an employee is assigned a respirator of a make, type, or size different from any previously fit-tested.

Qualitative fit testing will be performed by in-house personnel using the fit test protocols identified in 29 CFR 1920.134, Appendix A, Section B, Subsection 5 (Irritant Smoke). The fit test results will include, at a minimum, the following information:

- The name, signature, and social security number of the employee being fit tested;
- The respirator brand, model, and size;
- The date of the fit test:
- The method of fit testing used;
- A statement that the fit test protocols meet the requirements of 20 CFR 1910.134; and
- The name and signature of the fit tester.

Fit test reports shall be completed annually for all site personnel medically qualified and required to use respiratory protection. Fit test reports are maintained in the employee's personal health and safety file by the SSHO and may be reviewed upon request

5.0 Procedure for Proper Use of Respirators in Routing and Reasonably Foreseeable Emergency Situations

Project employees will only use the respiratory equipment provided for the project. The project utilizes a community use system for respiratory equipment. The employee will only use the size and make of respirator used during the fit test procedure.

If the employee is not sure of their size, they will check with the SSHO who will refer to their fit test record for verification. The exception to this procedure will be subcontractor personnel, who are responsible for reporting to the site with their own properly assigned and fitted respirators. Compliance with these requirements will be monitored by the SSHO.

Contact lenses may be worn while using a full-face piece respirator. Sevenson will provide special eyeglass inserts designed for the respirator if an employee must wear eyeglasses with a full face-piece respirator.

The actual use of all respiratory protective equipment will conform to the manufacturer's operating instructions and training provided to the employee. A copy of all operating instructions for each type of respiratory equipment utilized will be maintained by the SSHO. The SSHO shall reference these operating instructions during annual fit-testing exercises and/or training involving respiratory equipment. Upon request to the SSHO, operating instructions shall be made available.

Respirators will not be worn when conditions exist that prevent a good face-to-face piece seal. These conditions include, but are not limited to:

- The growth of a beard or sideburns,
- The use of a skull cap which projects under the face piece,
- The use of regular corrective glasses where the temple bars prohibit a proper seal, or

• The absence of one or both dentures.

As stated, employees will be required to equip their respirators with the project's standard APR cartridge, organic vapor/acid gas/HEPA (P100) for operations that require APR use. The cartridge change-out schedule is based on the site contaminant benzene that has the lowest Permissible Exposure Limit (PEL) for any of the project's contaminants of concern. Based on the Woods Equation (predictive model), APR cartridges will be changed at the end of each shift.

Employees will be required to perform a positive and negative fit check each time they don a respirator. Employees will be instructed to leave any work area where respirators are being used in the following situations:

- Before removing the respirator face piece for any reason;
- Before changing respirator cartridges; or
- When leakage around the face piece or a change in breathing resistance is detected

6.0 Procedure for Cleaning, Disinfecting, Storing, Inspecting, Repairing, Discarding, Maintaining Respirators

Respirators must be cleaned and disinfected at a frequency necessary to ensure the proper protection is provided to the wearer. For this project, respirators worn on a daily basis will be cleaned and disinfected at the end of the shift and during the annual inspection session. A respiratory cleaning station is set up in the decontamination room. The station will include, at a minimum, the following items:

- A bucket with a respirator cleaner/sanitizer solution and a soft bristle brush;
- Warm water clean rinse;
- Clean water rinse; and
- A non-contaminated area where respirators may be hung to dry.

Gross decontamination of the respirator shall be completed prior to immersion in the sanitizing solution and does not constitute respirator cleaning, but should always be completed as a precursor. Employees will remove and discard respirator cartridges prior to cleaning. Discarded cartridges exposed to site contaminants shall be discarded as hazardous waste.

Each employee who wears respiratory protection shall be responsible for cleaning the respirator they use. The following instructions will be posted at the respirator cleaning stations to ensure adequate cleaning and disinfection.

- Clean and disinfect respirators daily.
- Follow appropriate respirator cleaning/disinfection procedures. These procedures include:
 - -Remove mouth and nose pieces prior to cleaning respirators.
 - -Wash all parts thoroughly with sanitizer solution using a soft bristle brush.

- -Rinse all parts in warm water.
- -Perform a second rinse in clean water.
- -Place respirators in a non-contaminated area to dry.

The SSHO will ensure compliance with the requirements of this section by periodically observing employees' cleaning techniques.

Cleaned and sanitized respiratory protection will be stored in designated areas in plastic bags identified with the words "Cleaned and Disinfected" and secured with a tamper-proof seal. Respirators shall be stored upright on the shelving to eliminate distortion.

During field use, special attention will be paid to protecting respiratory protection from:

- Harmful chemical or physical agents;
- Dusty conditions;
- Temperature extremes;
- Direct sunlight;
- Mechanical force; and/or
- Distortion of the rubber and elastic respirator components.

Respiratory equipment users shall store their respirator in the plastic bag provided when taken from the shelf during periods of non-use.

New and/or replacement respirators will be stored in the Safety Officer trailer in protective plastic bags and/or in manufacturer's boxes away from heat, direct sun, and dust.

Employees will be instructed to inspect the respirator they select prior to each use, after each use, during cleaning, and at any other time, as necessary. The inspection will focus on:

- Cleanliness;
- Respirator and respirator component integrity; and
- The presence and correct installation of component parts.

The Safety Officer will be required to hold an inspection session with the staff on an annual basis. The purpose of this session will be to allow the staff a chance to inspect a personal respirator. This inspection will provide aid in the identification of problems that the inspector of the respirator may not notice.

During this session, the respirator will be completely disassembled in accordance with the manufacturer's instruction. Specific disassembly procedures will be reviewed during the training. Copies of the manufacturer's assembly/disassembly instructions will be made available to all site employees. All individual parts will be thoroughly cleaned and inspected prior to assembly and use.

Sevenson will have available approved replacement parts for all respirators used on site. Respirator users will notify the Safety Officer when an inspection reveals a problem or inconsistency. The Safety Officer, or a designated representative, will then examine the respirator and determine if the complete respirator or a component part needs to be replaced. The Safety Officer, or a designated representative, will provide the appropriate replacement part/respirator and assist in the installation, as necessary. If a respirator cannot be immediately repaired, the respirator will be tagged with a "Do Not Use" sign and taken out of service until repairs can be completed.

Respiratory protection equipment that is no longer usable or viable will be discarded as soon as practical by the Safety Officer.

7.0 Procedure for Ensuring Adequate Air Quality, Quantity, Flow of SAR

The Safety Officer is responsible for the assembly and disassembly of the supplied air system. The system consists of one high/low stage regulator.

This system will require the use of Grade D breathing air, Type T cylinders. Cylinders shall comply with DOT Regulations and be properly labeled. A certificate of analysis from the supplier stating the quality of the air contained in the cylinder shall be maintained in the project record.

The system shall be visually inspected initially and during post pressurization. Initial inspection shall verify secure connections, secure cylinders, and no loose fittings. The maximum permissible inlet pressure must be 125 psig or 683 kPa. The pressure to any length of hose assembled to the respirator must be sufficient to deliver 115 liters/min (4 cfm) at the facepiece (low pressure regulator set between 60 and 100 psig).

Whenever a supplied air system is being utilized, a bottle tender is required. This individual is responsible for switching cylinders upon activation of the low-level alarm. Activation of the low-level alarm shall occur when the cylinder being utilized is at 25 % of capacity (~ 500 psig).

Switching bottles must be done in this sequence. A cylinder must never be completely exhausted of its contents.

- 1. Turn valve of open cylinder 100 % closed. Once closed immediately open the next full cylinder. This will not interrupt the airflow to the employee(s) utilizing the system. Failure to close a cylinder 100% prior to opening a new cylinder will cause equalization of the full bottle into the empty bottle.
- 2. Upon switching cylinders, place an "EMPTY DO NOT USE" tag on the empty cylinder.

8.0 Training in Respiratory Hazards

Employees will be trained in the specific hazards anticipated at the site. This training shall include but is not limited to:

- Coworker medical emergency
- Site wide evacuation
- Fire at the site
- HAZCOM training for the chemicals of interest or use at the site

9.0 Training in Proper Use

All personnel required to use respiratory protection on this project will meet specific training requirements, and have the corresponding documentation available in the site safety files.

Personnel will be expected to have at least a rudimentary knowledge of respirator use prior to job assignment. However, all site personnel will receive additional respirator training as a portion of their site-specific safety and health training.

The additional site-specific respirator training will include, at a minimum, the following information:

- Why the training is necessary;
- What conditions can render a respirator ineffective;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations;
- How to inspect, put on and remove, and check the seals of the respirator;
- What respirator cleaning, storage, inspection, and maintenance procedures are;
 and
- How to recognize medical signs and symptoms that may limit or prevent effective use of the respirator.

This initial training will be reinforced and updated through a series of regularly scheduled safety meetings and interaction with area supervisors. Training records will be maintained by the Safety Officer and will be available for review in the site safety office.

10.0 Procedure for Evaluating the Program

The SSHO will periodically review this respiratory protection program. The program will, at a minimum, be reviewed annually. More frequent reviews may be implemented by the SSHO if site conditions or concerns warrant an additional review. Changes will be enacted in respirator use procedures or policies based on the results of the SSHO's audits and observations or if legitimate concerns or issues are addressed to the SSHO on a repetitive basis. Any changes in the respiratory protection program will be documented and must first be approved by the Health and Safety Manager (HSM)

11.0 Voluntary Use Guidelines

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide and additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If Sevenson provides you a respirator or you supply your own, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
- Choose a respirator certified for use to protect against the contaminant of concern. NIOSH, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Do not wear your respirator into atmospheres containing contaminates for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particle or protect you against gases, vapors, or very small particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Appendix G

Hazard Communication Program



Sevenson Environmental Services, Inc.

HAZARDOUS COMMUNICATION PROGRAM

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305



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Attachment 1 – Chemical Inventory

Attachment 2 – Storage Location Map

Hazard Communication Program

POLICY STATEMENT

In order to conduct our business, Sevenson must use certain chemicals that require specific precautions to be taken to protect our employee's health. It is the policy of Sevenson, in compliance with the OSHA Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200 and the USACE EM 385-1-1 (Sept 2008) Safety Manual section 06.B.01, to communicate any relevant information regarding hazardous chemicals to potentially exposed employees, as well as to implement appropriate measures to safeguard employee safety and health. The goal of the program shall be to minimize the possibility of employee illness or injury arising from the exposure to hazardous chemicals.

It will be the responsibility of management and supervisors to ensure that adequate information is obtained and disseminated to the appropriate employees. It will be the employees responsibility to follow the recommended practices outlined in product labels, Material Safety Sheets (MSDS), company operating procedures, and company-provided training.

This Hazard Communication Program is intended to supplement our existing safety and health program. Current safety and health policies remain in effect.

The effectiveness of this program, as with all of our programs, depends upon the active support and involvement of all personnel.

Paul Hitcho, Ph.D, CIH

Pol Hetelor

V.P. - Director of Health and Safety

a. Hazardous or Toxic Agent Inventory

An inventory list shall be developed for hazardous or toxic agents used at the site. The following information will be supplied as part of the inventory list.

- (1) An explanation of how the agent is to be used.
- (2) Approximate quantities (e.g., liters, kilograms, gallons, pounds, ounces) that will be onsite at any given time. This information is typically for emergency response purposes.
- (3) A site map will be attached to the inventory showing where inventoried agents are stored.
- (4) The inventory and site map will be updated as frequently as necessary to ensure completeness and accuracy. Frequently shall be as new agents are introduced or completely removed from the site. Inventory lists and maps will be audited monthly by the SSHO to ensure the list and map reflects site conditions.

b. Hazardous or Toxic Agent Labeling

The following procedures shall be implemented to ensure that containers used to store and transport hazardous or toxic agents around the project site are appropriately labeled to communicate the physical and health hazards associated with the agents in the containers.

Sevenson will ensure that each container of hazardous chemical introduced to the workplace will be labeled with the following information:

- ldentity of the hazard
- Appropriate hazard warning or physical hazard
- Health hazard
- Manufacturers name and address
- C.A.S. Number (Chemical Abstract Service)

Sevenson adheres to the policy that all manufacturer's and/or shipping labels will be left on the containers. Labeling that is damaged or no longer legible will be replaced in kind or have the Material Safety Data Sheet (MSDS) attached directly to the product.

Transfer containers that are used to dispense smaller quantities of agents from bulk storage tanks shall be labeled with the contents and health hazard information when the agent is intended for immediate use. Transfer containers that are used to store smaller quantities of an agent not intended for immediate use must be labeled to reflect the information provided for the larger bulk storage container or have the MSDS attached to the container.

Note: Fuel cans (1 and 5 gallon safety cans) that are used to store gasoline, diesel fuel, or kerosene, only need to be labeled with the contents and health hazard information.

c. Material Safety Data Sheet Management

The following help outline the procedure for utilizing MDSDs at the project for each hazardous or toxic material used at the site.

- (1) Employees will be required to review MSDSs prior to using the agent for the first time at the site. This may be accomplished by the individual worker reading the MSDS or the SSHO may cover the new agent MSDS during the morning safety meeting. Either way, the user shall understand the specific safety and health protection procedures for using the agent.
- (2) The SSHO shall include and incorporate all applicable safety and health protection information into the Activity Hazard Analysis (AHA) or attach the MSDS to the AHA for activities in which the agent will be used.
- (3) The information provided in the MSDS will be utilized for use, storage, disposal, PPE selection, and emergency response.

It's up to Sevenson to obtain or develop a MSDS for all hazardous chemicals used in the workplace. The MSDS is a form that provides more detailed information about a chemical than the label. It is accessible upon request to employees through the employer. The MSDS file exists both on a computerized data system and in hard copies. The MSDS file is maintained by the Site Safety and Health Officer and is available for review at any time from the Safety Office. All material received on-site must have a MSDS prior to the use of this material.

<u>Sevenson's procedures</u> - If a MSDS is not received with the material, then the procedures for obtaining a MSDS are as follows:

- <u>Step 1</u> A letter will be sent at any time an item is received and a MSDS does not accompany it.
- <u>Step 2</u> If after 30 days, a MSDS has not been received, a follow up request will be sent.
- <u>Step 3</u> If after an additional 30 days from the follow up letter a MSDS has not been received, the company will report to OSHA in an attempt to receive the proper information.

d. Employee Information and Training

All new employees will be trained before being exposed to any hazardous chemicals or situations. Retraining will occur as needed when new hazards become recognized, or when employees become exposed to new hazards as a result of transfer, process changes, or new chemical introductions. In the event non-English speaking or reading employees are utilized

at the site accommodations will be made to either obtain a MSDS in their native langue or have someone who can communicate effectively with the individual(s) participate in the training. This training will cover the following topics:

- (1) The requirements and use of the HAZCOM Program on the project.
- (2) The location of all hazardous or toxic agents at the site
- (3) The identification and recognition or hazards or toxic agents at the site
- (4) Physical and health hazards for the agents at the site
- (5) The protective measures employees can implement when working with the specific hazardous or toxic agents.
- (6) The location of the MSDS, chemical inventory sheets, and storage area maps
- (7) Methods and observations that may be used to detect the release of hazardous chemicals, such as employee monitoring, visual sightings, or odors of hazardous chemicals when released

The SSHO will review all incoming MSDS for completeness and accuracy and make the information directly available to employees. Employees will be advised of precautionary measures in using the product.

The following is a complete outline of the guidelines used to check for MSDS completeness:

- (1) Do we have MSDS for the hazardous chemicals used?
- (2) Is the MSDS in English?
- (3) Does the MSDS contain at least the following information?
 - a) The identity on the label?
 - b) The chemical and common name for single substance hazardous chemicals?
 - c) For mixtures tested as a whole:
 - d) The chemical and common names of the ingredients which contribute to the hazards?
 - e) For mixtures tested as a whole:

The chemical and common names of all ingredients which are health hazards or carcinogens?

The chemical and common names of all ingredients which have been determined to present a physical hazard when present in a mixture?

- (4) Does the MSDS contain the physical and chemical characteristics of the hazardous chemical (vapor pressure, flash point, etc.)?
- (5) Does the MSDS contain the physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity?
- (6) Does the MSDS contain the health hazards of the hazardous chemical (including signs and symptoms, medical conditions aggravated)?
- (7) Does the MSDS contain the primary routes of entry?
- (8) Does the MSDS contain the OSHA PEL, the ACGIH TLV, and other exposure limits (including ceiling and other short-term limits)?
- (9) Does the MSDS contain the information on carcinogen listings (i.e. OSHA regulated carcinogens, those indicated in the national Toxicology (NTP) annual report, and those listed by the International Agency for Research on Carcinogens (IARC)?
- (10) Does the MSDS contain generally applicable procedures and precautions for safe handling and use of the chemical (hygienic practices, or personal protective equipment)?
- (11) Does the MSDS contain generally applicable control (engineering controls, work practices, or personal protective equipment)?
- (12) Does the MSDS contain date of preparation or last change? Is this the current MSDS?
- (13) Does the MSDS contain the name, address, and telephone number of a responsible party?
- (14) Are all sections of the MSDS completed?

e. Multi-Employee Jobsites

It is the policy of Sevenson to adequately apprise other contractors regarding the hazardous substance which their employees may be exposed to during the course of day to day activities. Contractors, whose employees may be exposed to hazardous substances used by Sevenson employees, will be given access to this Hazard Communication Program. This will provide all relevant chemical information necessary to protect their employees.

Contractors should be informed of conditions existing on-site which necessitate special precautionary measures through scheduled meetings.

Other on-site employers working among Sevenson employees are also required to adhere to the provisions of the Hazard Communication Standard. They shall make available copies of MSDS's for all hazardous materials used by their employees which can be reviewed by Sevenson employees. MSDS will be provided within a reasonable time period after such a request.

EMPLOYEE TRAINING PROGRAM

Training Course Outline

- I. Course Introduction
 - A. Chemical Hazard Recognition
 - B. Sources of Information on Chemical Hazards
 - C. Control of Chemical Hazards
- II. Chemical Hazard Recognition

Employees shall be instructed of the health hazards of each hazardous chemical in their workplace.

A. Types of Hazards

- 1. Physical Hazards employees shall be instructed on the fire hazard of hazardous chemicals in their workplace.
 - a. Combustible liquid
 - b. Compressed Gas
 - c. Explosive
 - d. Flammable
 - e. Oxidizer
 - f. Pyrophoric
 - g. Unstable or Reactive
- 2. Health Hazards
 - a. Acute Hazards
 - i. corrosive
 - ii. highly toxic
 - iii. toxic
 - iv. irritant

- v. sensitizer
- b. Chronic Hazards
 - i. carcinogens
 - ii. mutagens
 - iii. teratogens and reproductive toxins
 - iv. hepatotoxins
 - v. nephrotoxins
 - vi. neurotoxins
 - vii. other toxic effects

Employees shall be instructed on how to protect themselves when exposed to hazardous chemicals. They will also be instructed on the type and use of personal protective equipment required when using a particular hazardous chemical.

- B. Routes of Entry
 - 1. Ingestion
 - 2. Inhalation
 - 3. Skin absorption
- C. Symptoms of Exposure to Hazardous substances
 - 1. Acute exposure
 - a. Short term exposure period
 - b. Usually high concentrations
 - c. Immediate health effect
 - 2. Chronic exposure
 - a. Long term exposure period
 - b. Usually low concentrations
 - c. Long term health effects

- 3. Types of reaction to acute and chronic exposures
 - a. Chronic lung disease-silica, cotton dust
 - b. Anesthetics-solvent vapors
 - c. Irritants-formaldehyde, acids
 - d. Chronic liver damage-carbon tetrachloride
 - e. Sensitizers-reactive dyes
 - f. Cutaneous Hazards-ketones, chlorinated compound
 - g. Eye hazards-methanol, acids

D. Relationship of Dose to Risk

- 1. Toxicity of chemical
- 2. Concentration of chemical
- 3. Mode of exposure and exposure time
- 4. The greatest risk is posed by toxic substances that are:
 - a. highly toxic
 - b. present in high concentrations and
 - c. to which employees are exposed to several hours per day/day after day

E. Exposure standard

- 1. OSHA Permissible exposure limits
 - a. 8-hour time weighted averages
 - b. 15 minute ceiling
 - c. legally binding
- 2. ACGIH Threshold Limit Values
 - a. 8-hour time weighted averages
 - b. instantaneous ceiling

- c. not legally binding
- 3. Other Relevant Standards or Criteria
 - a. NIOSH Criteria Documents
 - b. ANSI Standards
 - c. EPA Health Assessment Documents
- 4. Common Features of Exposure Limits
 - a. units-very small amounts
 - i. ppm, ppb, ppt
 - ii. mg/m3, ug/m3
 - b. Not "safe" limits but exposure to concentration below levels is generally low risk
- III. Sources of Information on Chemical Hazards
 - A. Summary of HCS
 - 1. Hazard determination-performed by manufacturer
 - 2. MSDS
 - 3. Labeling
 - 4. Training Requirements
 - 5. Written Hazard Communication Program
 - 6. List of Hazardous substances in workplace
 - B. Contents of a MSDS
 - 1. Manufacturer's address and phone number
 - 2. Hazardous ingredients/identity
 - 3. OSHA, PEL, ACGIH, TLV, other recommended limits
 - 4. Physical/Chemical characteristics
 - a. boiling point

- b. vapor pressure
- c. vapor density
- d. solubility in water
- e. specific gravity
- f. melting point
- g. evaporation rate
- h. appearance and odor
- 5. Fire and explosion hazard data
 - a. flash point
 - b. flammable limits
 - c. explosive levels
 - d. extinguishing media
 - e. special fire fighting procedures
 - f. unusual fire and explosion hazards
- 6. Reactivity Data
 - a. stability
 - b. conditions to avoid
- 7. Health Hazard Data
 - a. routes of entry
 - b. acute and chronic hazards, including carcinogen
 - c. signs and symptoms of exposure
 - d. medical conditions aggravated by exposure
 - e. emergency first aid procedures
- 8. Precautions for Safe Handling and Use
 - a. steps to be taken in handling and storage

- b. waste disposal method
- c. precautions to be taken in handling and storing
- d. other precautions

9. Control measures

- a. ventilation
 - i. local exhaust, special
 - ii. mechanical other
- b. sealed systems
- c. other engineering controls
- d. respiratory protection
- e. protective gloves
- f. other protective clothing or equipment
- g. eye protection
- h. workplace practices, industrial hygiene procedures

C. Labeling

- 1. Labels tell you
 - a. what the principal hazards are
 - b. what precautions you should take
 - c. emergency first aid procedures
- 2. Labels provide this information by
 - a. words
 - b. symbols
 - c. numbers
 - d. colors
 - e. combinations

- D. Recognizing Hazardous Chemicals are present
 - 1. Appearance or odor of hazardous chemicals
 - 2. Physical or health effects
 - 3. Monitoring
 - 4. Inventory Control
- IV. Control of Chemical Hazards
 - A. Chemical Hazards are Controlled by Various Methods
 - 1. Engineering control, e.g. ventilation
 - 2. Workplace practices e.g. grounding containers of flammable substances
 - 3. Personal protective devices
 - a. gloves, shoes
 - b. safety glasses
 - c. protective clothing
 - d. dust masks
 - e. respirators
 - 4. Isolation of chemical
 - B. Safe Handling of Hazardous Chemicals
 - 1. Storage practices
 - 2. Reactivity considerations
 - 3. Proper containers
 - 4. Spill prevention
 - 5. Spill cleanup procedures
 - 6. Personal protective equipment

Health Hazards & Emergency First Aid

a. **Health Hazard**

This section is a quick summary of the possible health hazards associated with exposure to the chemicals.

b. Emergency First Aid

This section explains which type of first aid is to be applied in case of inhalation-absorption-ingestion.

Fire, Explosion & Reactivity

a. Extinguishing Agent

This explains what type extinguisher is to be used in case of fire. ABC-WATER-FOAM-etc.

b. Flash Point

Minimum temperature at which a liquid gives off sufficient vapor to form, with air, an ignitable mixture.

c. Reactivity

Reactives are materials which can change violently when combined with certain other materials or conditions. There are very few reactives in use by the construction trades. But knowing the hazard will help you when you do come in contact with them.

Oxidizers add oxygen to any situation where burning is occurring, and make the fire more intense and more difficult to put out. Some reactives explode or give off gas and heat in air or on contact with water.

Many substances can act like reactives when mixed with incompatible materials. Acids and bases react strongly with each other, giving off heat, often enough to cause boiling and splattering of the mixture. The Material Safety Data Sheet should tell you what materials may be incompatible with the chemical you are working with and what other materials to avoid.

EXAMPLES

The most common reactive mixture in construction is found in gas welding or brazing. Acetylene gas mixes with oxygen gas to provide an extremely powerful reaction in the form of a very intense flame.

Oxidizers, though, are the most commonly found reactive class. Most

oxidizers are also corrosive, so keeping them away from the skin and eyes is necessary.

Protection Equipment

a. **Personal Protection**

This section explains what type of personal protection is required when working with various chemicals.

Example:

- vapor canister respirator
- supplied air hose & mask
- rubber gloves
- rubber apron

Degree of exposure is always a consideration in the determination of exactly which of the personal protective equipment items shown is necessary for each particular operation. Consult Safety Director for further guidance on this.

This section also lists requirements for ventilation and names the specific types of ventilation needed.

Handling and Storage

This section describes proper handling and storage procedure for the chemical.

Example:

Safe Handling and Use of Flammables

The important points for using flammables safely and reducing the amount of flammable vapor in the air and limiting sources of ignition are:

- Don't Smoke Eliminate all sources of flames or ignition.
- Keep work containers of flammable materials as small as possible.
- Reduce surface area of all containers.
- Clean up spill promptly.
- Store flammable soaked rags in covered protective containers.

- Bond and ground all containers when dispensing.
- Use explosion proof wiring and equipment.

Safe handling of flammables may require personal protective equipment. Repeated contact with flammables on skin can remove the fatty protective layer and lead to irritation. Some flammables are also toxic and may require the use of a respirator. Also, avoid splashes onto the skin and into the eyes.

Safe Storage of Flammables

Flammables, especially solvents, should be stored in the right container, unbreakable and specially designed for flammable liquids. It should have flame arresters and have a spring loaded cover. If storage is inside, small amounts can be kept in special flammable cabinets. Larger amounts should be stored in specially designed storage rooms which have devices and controls to minimize the risk of fire or explosion.

Care should be taken to provide storage of flammables away from oxidizers and corrosives. Oxidizers may ignite an otherwise non-flammable mixture. Corrosives may destroy the atmosphere. Concentrated vapors of flammables may sink to the floor and travel some distance to a source of ignition, with the flashback traveling back to the source containers.

Emergencies: Spills and Leaks

Small leaks should be cleaned up quickly. If it is possible to limit the leak by closing a valve, shutting down the equipment, or moving the container, it should be done. Turn off electrical equipment which may provide a source of ignition.

If the leak is large, or your skin, eyes or clothes are contaminated, leave the area immediately. Wash eyes, skin and clothes with lots of water to remove the material. Get to fresh air. Notify your foreman or contractor as soon as it is safe to do so. Unless you have special training and the proper protective equipment, do not try to clean up a large leak.

Storage and Handling

Reactivities should be stored away from other types of materials. Many, such as lithium, require conditions for storage, which necessitates separate rooms or facilities for storage.

Read the MSDS carefully when you see the word oxidizer or reactive. Note what chemicals are incompatible with the materials that you are using and avoid situations where they might become mixed.

Be sure to use any protective clothing or respiratory protection required by the MSDS or the process documentation. Many reactives are toxic, corrosive, or both. Protect yourself against the health hazards as well as the physical hazards of

reactives.

Emergencies

If it is practical, shut down any electrical equipment. If possible, stop the spill or leak from continuing, but if there is doubt, leave the area and notify your foreman or contractor.

Do not try to neutralize the material or clean up the spill unless you have appropriate protective equipment and have been properly trained in how to do so safely.

Exposure Limits

Toxic

Any material can be hazardous under the wrong conditions. The degree of the hazard depends on the dose. Even a substance as necessary to life as salt can cause problems when too much is present; drinking saltwater is eventually fatal. Small amounts of most materials may cause mild symptoms which disappear once the person is removed from the exposure. Larger doses can cause more severe illness, and extremely large doses can cause irreversible illness and even death.

Each person responds differently to hazardous material. In the United States, OSHA Permissible Exposure Limits are intended to protect the average person from the harmful effects of chemical exposures over a working lifetime. OSHA's definition of Toxic or Highly Toxic materials applies to only a very few potent poisons seldom used by construction trades. We will use the more common definition of toxic: any material which can cause illness or injury.

Acute and Chronic Effects

Toxic materials can poison the body and cause harmful effects. There is a difference between the acute effect and chronic effect of exposure to toxic chemical hazards. Acute effects are usually due to a sudden overexposure to large quantities or concentrations of a material. The acute effects, for example, a firefighter overcome by smoke, will usually disappear after the exposure ends. Sometimes, supportive medical treatment is needed, but the body usually returns to normal.

Chronic toxic effects aren't easy to recognize. They are often the result of low levels of exposure over a long period of time. Typically, they effect one or more of the body's organ systems. If the problem is identified, the effect can often be reduced. If the exposure to a toxic material is stopped, healing of the organ or organ system can return the body to normal. Because of the slow and subtle nature of some diseases caused by exposure, irreversible damage can be caused by a long-term exposure to a chemical hazard. Asbestosis is a disease common to older insulation workers, and is an example of a debilitating chronic disease resulting from a long-term exposure to asbestos fibers in the air.

Routes of Entry

Remember earlier we said that if a material couldn't get in or on your body, it probably wouldn't hurt you. To better understand what this really means, lets cover the three common ways that chemicals can enter your body.

- 1. **Inhalation** Whenever you are doing a job that uses a toxic material, you need to be careful not to breathe too much of that material. This is the most common way that chemicals get into the bloodstream. As we breathe the material, which is probably a vapor, gas or fume mixed with the air, it enters our lungs. It is then easily transferred into our blood and taken throughout the body. To prevent this from happening, good ventilation is very important. Open doors and windows, or set up a fan that directs the air away from you. Respirators may also be necessary to protect you. Be sure you choose the correct one and know how to use it. Air filtration respirators take the toxic material out of the air you breathe, while air supplied respirators provide you with clean air from a tank or other source. If you think you need a respirator, check with your foreman or contractor and read the label or MSDS.
- 2. **Ingestion** Some chemicals can hurt you if you accidently eat or swallow them. Good personal habits often stop this route of entry. Washing hands before you eat and keeping your clothes clean are good practices. Check the MSDS or label for emergency and first aid procedures, and see a doctor if necessary.
- 3. **Skin Absorption** This is a hazard with some materials. They have the ability to pass through unprotected skin into the bloodstream. Wearing proper gloves and other skin and face protection will reduce the chance for this route of entry to cause you harm. The label and MSDS both will tell you if gloves or other equipment is recommended. Remember that not all gloves are alike, nor will they protect you from all materials. Use the right ones.

Examples of Toxic Materials

Solvents - Solvents are among the most common toxic materials in the workplace. Many processes, mixing and cleaning, use or give off solvent vapors. They are also used as thinners in paints and adhesives. Solvents vary in their toxicity from practically non-toxic materials such as the alcohols, ketones, halogenated solvents, to the very toxic such as dimethyl acetamide, methyl acrylate and other materials. Some solvents are also flammable or reactive.

The government and health professionals evaluate the hazards of materials, and decide upon exposure limits. These levels are called Threshold Limit Values (TLV). TLV's are usually stated in parts per million or milligrams per cubic meter, and represent a mixture of the material with the air we breathe over a period of time. The TLV is expressed as a time weighted average (TWA) and indicates the limit of exposure that you should have over a

period of time (eight hour work day, 40 hour work week). The TLV should not be exceeded. The TLV can be found for each material on the MSDS.

The following table provides a "Rough Guide" to the toxicity of solvents or other toxic materials you may work with. Check the glues, solvents or cleaners you use again this table. So you don't get confused, the more hazardous chemicals have the **lowest** TLV's, while the safer ones usually have **high** values listed:

Mildly Toxic	500 - 1000 ppm
Moderately Toxic	50 - 500 ppm
Toxic	1 - 50 ppm
Highly toxic	less than 1 ppm

Solvents can all cause irritations to eyes and skin in high concentrations. Most will dissolve the protective layer of oils on the skin and leave it looking white in the small cracks. They should never be used to clean the skin; if there is a problem with contamination, some form of glove or barrier cream should be used to protect the skin. The early signs of overexposure often include headaches, dizziness, and nausea, but there are many other causes of these symptoms.

Metals and other particulate solids - can be toxic and are usually given off when welding or grinding. Some, like gypsum dust are only nuisance dusts. Others, like zinc fume, can cause flu-like symptoms. Others, like asbestos have been linked to cancer or other chronic diseases. Dusts can irritate the skin and be ingested along with food, drinks, or smoking materials if they aren't washed off the hands and removed from clothing. They may even be carried home to the family and cause problems there.

Lubricants, coolants and machine oils - are not that common in construction, but are used when cutting, turning or milling metals. There are three types: petroleum based (straight oils), water based, and synthetic fluids which contain no oils. Many cutting oils contain additives to inhibit corrosion, prevent bacterial growth and permit high temperature operation. The fumes and mist from cutting operations can be irritating to the eyes and lungs. Skin exposure can result in acne-like conditions and can cause other problems. Avoid breathing mist and fumes and use gloves and aprons to minimize contact with the materials.

Gases - present a range of problems. Some, like nitrogen, are simple asphyziants - they prevent the body from getting enough oxygen by displacing it from the airstream. Some are chemically hazardous, like carbon monoxide, or nitrous oxide, which cause poisoning of the body systems. Some are very toxic, like many of the gases used in the semiconductor industry. These gases, which include silane, chlorosilane, arsine, phosphine, and others are very toxic - a few concentrated breaths can be fatal. Some are also very reactive, silane burns when exposed to air, and these hazards must be dealt with using carefully designed engineering controls. Other gases, like hydrogen, and natural gas are explosive and must be

treated with great care. All compressed gas cylinders should be secured by chains or stands at all times, and only the proper fittings should be used.

Plastics, epoxies and polymers are a growing group of industrial chemicals. Materials

such as polystyrene, polypropylene, acrylates, polyacrylates, vinyls, and polyurethanes are used for making a wide variety of products. Although most of these materials are not toxic in their final form, where they are being molded, extruded, vacuum formed, or laid up, there can be significant hazards. Isocyanates used in polyurethane production are strong lung sensitizers. Where the material is cut or molded at high temperature, the monomer materials, which can be quite toxic can be released. The products of partial thermal decomposition, or burning, can be very hazardous.

Sensitizers are a special class of materials that present a unique hazard. These are materials, such as <u>epoxy systems</u> and isocyanates, that react with the body's immune system. On the first exposure, which may be rather high, some mild irritation may be experienced. But, in future small exposures, sever immune reactions, hives, asthma-like symptoms and others, can be disabling and even fatal.

Carcinogens, mutagens, and teratogens: A mutagen is a material which causes a change in the genetic makeup of a cell. Substances which cause cancer are called carcinogens. Those which change the reproductive cells and can cause changes in the offspring are called teratogens. Although the body may be able to deactivate or remove some of these materials, a control strategy which minimizes worker exposure is essential when working with these materials.

Reproductive hazards: Some materials can cause problems in reproduction, either by interfering in the capability for reproduction, such as DBCP, or through being toxic to fetuses in the womb. Dimethyl acetamide is a material which is more toxic to developing fetuses than to the mother. Fortunately, few materials in construction fit this hazard category.

Safe Handling

In general, minimizing contact with toxic materials will minimize the toxic effect. For hundreds of years, scientists noted that "The dose makes the poison." Use controls, such as ventilation, to draw contaminants away from the workplace air. Use respiratory protection to minimize the inhaled dose. Use goggles, gloves, aprons and other protective gear to keep the material off the skin, out of the eyes and away from the body. Although the body can get rid of a certain amount of most toxic chemicals, and the standards are there to maintain the level below that point, you can minimize your exposure by proper understanding of the routes of entry and methods of control.

Learning

Knowing that we have an inventory of hazardous materials, MSDS's on file, warning labels on the containers can improve our safety. But learning to recognize the hazards on the job

and how to protect ourselves is really what this training section is really all about.

We share the responsibility for safety and health with our employees, and we also share the training responsibility.

But we can have all the training in the world and if we don't learn anything or practice what we've learned, the entire system can be a failure. Take this program as an example. It contains most of the important points you need to know. But if you don't take the time to learn it, how will you know when you face a material that is hazardous or what to do to protect yourself when you use it?

Learning, not training, is really what this part of the system is all about. Be concerned and ask questions. **THE SYSTEM DOES WORK!**

Attachment 1 – Chemical Inventory

Cornell-Dubilier Electronics Superfund Site

333 Hamilton Boulevard South Plainfield, New Jersey 07080

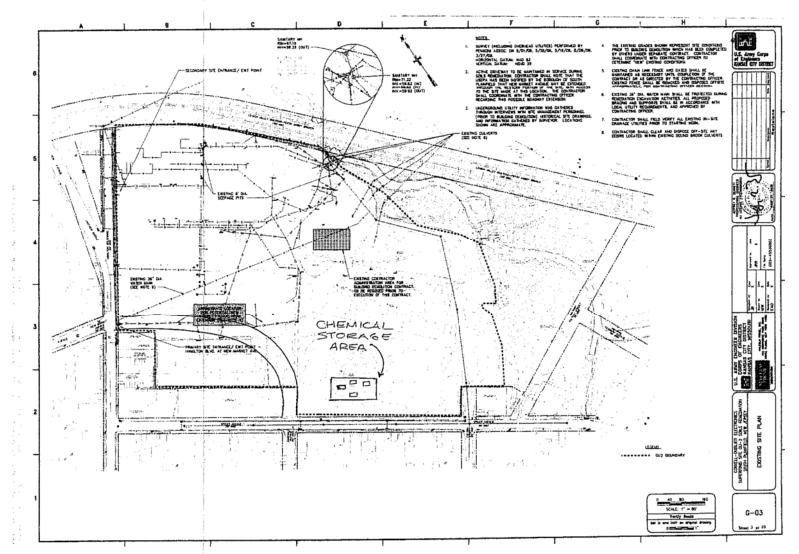
Tel: 908 769 5301

Chemical Inventory List

Product	Quantity
Gasoline	275 Gallons
Diesel Fuel	350 Gallons
Motor Oil	220 Gallons
Used Motor Oil	Up to 250 Gallons
Hydraulic Fluid	220 Gallons
Anti-Freeze	220 Gallons
Household Bleach	2 Gallons
Pine-sol	2 Gallons
Windex	2 Gallons
Simple Green	5 Gallons

Attachment 2 – Storage Location Map

APPENDIX G, ATTACHMENT Z, MAP SHOWING EUCATION OF CHEMICAL STORAGE AREA.





Appendix H

Control of Hazardous Energy (LO/TO) Program



Sevenson Environmental Services, Inc.

Control of Hazardous Energy Program



LOCKOUT PROCEDURE

Purpose

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

Compliance with this Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance will not attempt to start, energize, or use that machine or equipment. Any employee found violating this procedure will be subject to discipline including written warning, suspension, or dismissal from the company.

Sequence of Lockout

- 1. Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance. It is the responsibility of the equipment operator to notify all affected supervision and employees when a piece of equipment is to be repaired.
- 2. The authorized employee will refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, will understand the hazards of the energy, and will know the methods to control the energy.
- 3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
- 4. De-activate the energy isolating device(s).
- 5. Lock out the energy isolating device(s) with assigned individual lock(s).
- 6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

8. The machine or equipment is now locked out.

Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps will be taken.

- 1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
- 2. Check the work area to ensure that all employees have been safely positioned or removed from the area.
- 3. Verify that the controls are in neutral.
- 4. Remove the lockout devices and reenergize the machine or equipment.

Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.

5. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

The above procedure will be adequate in most situations at the Site. In the event a complex component or system needs to be neutralized and made safe prior to performing work a specific Activity Hazard Analysis shall be performed and additional procedures developed to ensure the safety of Site personnel.

Appendix I

Confined Space Program



Sevenson Environmental Services, Inc. CONFINED SPACE PROGRAM



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1.0 Purpose

The purpose of Confined Space Entry Program is to protect the health and safety of employees who enter confined spaces and/or are assigned to serve as attendants or rescue personnel. This program is also intended to ensure compliance with 29 CFR 1910.146 and EM 385-1-1 Section 34.

2.0 Application

This program applies to:

- 2.1. All employees, who are authorized to enter a confined space
- 2.2. All employees assigned to serve as attendants
- 2.3. Provide assistance during a confined space emergency rescue
- 2.4. Employees who serve as Confined Space Entry Supervisors or Confined Space Entry Program Administrators.

3.0 Definitions

- 3.1. ACCEPTABLE ENTRY CONDITIONS conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space can safely enter and perform work.
- 3.2. ATTENDANT an individual stationed outside the permit-required confined space who had specific training and monitors the authorized entrants inside the space.
- 3.3. AUTHORIZED ENTRANT employee who is authorized to enter a permit-required space.
- 3.4. BLANKING OR BLINDING absolute closure of a pipe, line, or duct by fastening across its bore a solid plate that completely covers the bore and can withstand the maximum upstream pressure.
- 3.5. CONFINED SPACE a space that meets <u>all</u> the following criteria:
 - 1) is large enough and so configured that an employee can bodily enter and perform assigned work;
 - 2) has limited means of entry and egress; and
 - 3) is not designed for continuous employee occupancy.
 - Examples may include tanks, silos, boilers, pits, bins, manholes electrical vaults, degreasers, and hoppers.
- 3.6. ENGULFMENT surrounding and effective capture of a person by a liquid or finely divided solid substance (i.e sand, corn. grain, sawdust etc).
- 3.7. ENTRY a person's intentional passing through an opening into a permit-required confined space.
- 3.8. ENTRY PERMITS a written or printed document that allows and controls entry into a permit space.
- 3.9. ENTRY SUPERVISOR person responsible for:
 - 1) determining if acceptable conditions are present before entering a permit space;

- 2) for authorizing entry;
- 3) coordinating and supervising all entry operations; and
- 4) terminating entry.
- 3.10. HAZARDOUS ATMOSPHERE an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes
 - 1) Flammable gas, vapor or mist in excess of 10% of its Lower Explosive Limit (LEL).
 - 2) Airborne combustible dust at a concentration that meets or exceeds its LEL.
 - 3) Atmospheric oxygen concentration below 19.5 percent or above 23.0 percent (22% for USACE sites)
 - 4) Atmosphere concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environment Control, or in Subpart Z, Toxic and Hazardous Substances, of 29 CFR 1910 and which could result in employee exposure in excess of its dose or PEL
 - 5) Any other atmospheric condition that is immediately dangerous to life or health.
- 3.11.HOT WORK PERMIT employer's written authorization to perform operations (for riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.
- 3.12. IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH) any condition that poses an immediate threat to life, or a delayed threat to life, or that would cause irreversible adverse health effects, or interfere with an individual's ability to escape unaided from a permit space.
- 3.13.ISOLATION process by which a permit space is removed from service and completely protects against the release of hazardous energy or material into the space.
- 3.14.LOWER EXPLOSIVE LIMIT (LEL) the lowest concentration of gas or vapor, expressed in percent by volume in air, that burns or explodes if an ignition source is present at room temperature.
- 3.15.LINE BREAKING intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas or any fluid at a volume, pressure, or temperature capable of causing death or serious physical harm.
- 3.16.NON PERMIT CONFINED SPACE- A confined space that does not contain or have the potential to contain an atmospheric hazard or any other serious safety or health hazard.
- 3.17. OXYGEN DEFICIENT ATMOSPHERE an atmosphere containing less than 19.5% oxygen.
- 3.18.OXYGEN ENRICHED ATMOSPHERE an atmosphere containing more than 23.0% oxygen (22% for USACE sites).
- 3.19. PERMISSIBLE EXPOSURE LIMIT (PEL) the airborne concentration of a hazardous material that must not be exceeded over a specified time. This value is established by the Occupational Safety and Health Administration (OSHA).

- 3.20. PERMIT-REQUIRED CONFINED SPACE a confined space that has one or more of the following characteristics:
 - 1) Contains or has a reasonable potential for hazardous atmospheres.
 - 2) Contains a material that has the potential for engulfment.
 - Is internally configured so an employee could become trapped or asphyxiated by inwardly converging walls or a floor that slopes downward into a smaller cross-section.
 - 4) Contains any other recognized serious safety or health hazard.
- 3.21.PROHIBITED CONDITION any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
- 3.22. RESCUE SERVICE personnel designated to rescue employees from permit spaces.
- 3.23. RETRIEVAL SYSTEM equipment used for a non-entry rescue of persons from permit spaces (i.e., tripod).
- 3.24.TESTING process by which hazards that may affect entrants of a permit space are identified and evaluated.
- 3.25.THRESHOLD LIMIT VALUE (TLV) the airborne concentration of a hazardous material that should not be exceeded over a specified time. This value is established by the American Conference of Governmental Industrial Hygienists (ACGIH).
- 3.26. WELDING/CUTTING PERMIT written authorization to perform operations that can provide a source of ignition (e.g., welding, cutting, burning, or heating) or a hazardous atmosphere.

4.0 Responsible for Compliance

4.1. The Confined Space Entry Program Administrator is the SSHO, or Superintendent if a SSHO is not assigned to the project.

The responsibilities of this individual shall include:

- 1) Conducting/coordinating hazard assessments.
- 2) Determining the classification (permit required/non permit space and location of each confined space.
- 3) Coordinating the posting of appropriate danger/caution signs by each confined space.
- 4) Supervising the selection and use of respirators in conjunction with the Respiratory Protection Program Administrator.
- 5) Coordinating the medical screening of respirator users.
- 6) Conducting/coordinating supervisory and employee training (including attendants) and maintaining all training records.
- 7) Conducting an annual evaluation of the overall program to determine its continued effectiveness.
- 8) Consulting employees and their authorized union representatives on the development and implementation of the Confined Space Entry Program.

4.2. Managers and Supervisors

The responsibilities for these people shall include:

- 1) Actively supporting the Confined Space Entry Program and providing funding to purchase equipment when needed.
- 2) Ensuring all assigned personnel are knowledgeable of all aspects of the Confined Space Entry Program.
- 3) Ensuring their employees comply with all elements of Confined Space Entry Program.
- 4) Ensuring appropriate PPE and equipment is properly utilized and maintained.

4.3. Confined Space Entry Supervisor is the Superintendent.

The responsibilities of this individual shall include:

- 1) Providing confined space entry personnel with a copy of the most current Confined Space Entry Program and any future changes.
- 2) Knowing the hazards that may be encountered during entry and informing the entrants about the hazards, including information on the mode, signs, or symptoms and consequences of exposure.
- 3) Verifying that the proper atmospheric tests have been conducted and that all procedures and equipment, mentioned in the permit, are in place before signing the Confined Space Entry Permit.
- 4) Assuring that the Confined Space Entry Permit is completed prior to each entry.
- 5) Terminating the entry and canceling the permit when needed.
- 6) Verifying that rescue or other emergency personnel are available and that the means for summoning them are operable in the event that an emergency occurs.
- 7) Removing unauthorized individuals who have entered or who attempt to enter the confined space.
- 8) Determining whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, and that entry operations remain consistent with terms of the entry permit.
- 9) Maintaining completed entry permits and equipment calibration records.
- 10) Providing employees and their authorized union representative(s) an opportunity to observe the atmospheric testing of the confined space.

NOTE: The Confined Space Entry Supervisor may also serve as an attendant or as an authorized entrant providing that person is properly trained and equipped. The duties of the Confined Space Entry Supervisor may also be passed from one individual to another during the course of an entry operation as long as the alternate is qualified.

4.4. Authorized Entrants

All authorized entrants shall be responsible for:

1) Knowing and recognizing the hazards that may be faced during entry including

information on the mode, signs, or symptoms and consequences of exposure.

- 2) Using and maintaining the proper PPE and other equipment.
- 3) Communicating with the attendant as necessary.
- 4) Alerting the attendant when hazardous conditions are detected, identified, or suspected.
- 5) Exiting the confined space immediately whenever:
 - a. Ordered to do so by other entrants, the attendant or the Confined Space Entry Supervisor.
 - b. Warning signs/symptoms are identified,
 - c. Prohibited conditions are identified,
 - d. An evacuation alarm is activated.
- 6) Complying with all other aspects of the Confined Space Entry Program

4.5. Attendants (Standby persons)

All authorized attendants shall be responsible for:

- 1) Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- 2) Knowing the possible behavioral effects of the hazard exposure in the authorized entrants.
- 3) Maintaining an accurate count of authorized entrants in the confined space and ensures that the means used to identify the authorized entrants accurately identifies who is in the space.
- 4) Remaining outside the confined space during entry operations until relieved by another attendant.

Note: Attendants may enter a confined space to attempt a rescue if they have been trained and equipped for rescue operations and if they have been properly relieved.

- 5) Communicating with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the confined space.
- 6) Monitoring activities inside and outside the confined space to determine if it is safe for authorized entrants to remain in the space and order the authorized entrants to evacuate the space immediately under any of the following conditions:
 - a. If the attendant detects a prohibited condition.
 - b. If the attendant detects a behavioral effect of the hazard exposure in an authorized entrant.
 - c. If the attendant detects a situation outside the confined space that could endanger the authorized entrants; or
 - d. If the attendant cannot effectively and safely perform all the duties required.

- 7) Summoning rescue and other emergency services as soon as the attendant determines that entrants need assistance to escape from the confined space hazards.
- 8) Taking the following actions when an unauthorized person(s) approach or enter a confined space while entry is underway:
 - a. Warn the unauthorized person(s) that they must stay away from the confined space.
 - b. Advise the unauthorized person(s) that they must exit immediately if they have entered the confined space.
 - c. Inform the authorized entrants and the entry supervisor if an unauthorized person(s) have entered the confined space.
 - d. Performing non-entry rescues as specified in Section 6.8.2.
- 9) Performing no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

5.0 Permit System

5.1. Permit

Before entry is authorized, an entry permit shall be prepared in order to document the completion of safety measures required (as discussed in section 6.0 of this Program). The completed permit shall be made available to all authorized entrants or their authorized representatives, at the time of entry, by posting it at the entry portal or by any other equally effective means.

- 1) The Confined Space Entry Supervisor shall sign a completed Confined Space Entry Permit or in his absence another member of the health and safety staff (if properly trained) to authorize entry into a permit-required confined space.
- 2) The Confined Space Entry Supervisor shall ensure that the permit specifies the location, type of work, personal protective measures, authorized entrants, monitoring equipment, hazards of the permit space, hazard control measures and any required rescue equipment. The procedure for contacting rescue services will also be included on the permit.
- 3) The permit shall be dated and carry an expiration time limiting the work to one shift.
- 4) The duration of the permit may not exceed the time required to complete the assigned task or job.
- 5) The Confined Space Entry Supervisor shall terminate the permit if a potential hazardous situation occurs which exceeds the conditions authorized on the permit or the entry operations, documented on the permit have been completed.
- 6) Cancelled entry permits shall be retained for at least 1 year.
- 7) The permit must be available at the work area outside the confined space entry point.
- 8) All confined space entry permits must be given to the Confined Space Entry Supervisor after the work is completed.

- 9) Hot work (potential ignition sources) must be authorized on a separate hot work permit that is attached and noted on the confined space entry permit.
- 10) Individuals authorizing entry into a permit required confined space may serve as entrants or attendants if they have received the proper training.

5.2. Entry Procedure

Supervisors, attendants and authorized employees must complete the general requirements, discussed in the next section. Entry procedure to permit required confined space are as follows:

- 1) The Confined Space Entry Supervisor shall be notified prior to the time that an entrant enters a permit-required confined space.
- 2) A Confined Space Entry Permit shall be properly <u>completed and signed</u> by the Confined Space Entry Supervisor or in their absence another member of the health and safety staff (if properly trained) prior to entry into the permit-required confined space.
- 3) Only properly trained and authorized individuals will be allowed to enter a permit required confined space. Authorized entrants will maintain contact with the attendant either visually or verbally.
- 4) Each individual entering a permit-required confined space will, whenever practical, have a safety or retrieval line attached to a body harness or wristlets. The other end of the line must be secured to a secure anchor point or lifting device (i.e., tripod) outside the entry portal. Note: The anchor point shall not be secured to a motor vehicle in a manner that would pull the line out of the space if the vehicle moved unless proper Lockout/Tagout controls are in place. A retrieval line is not required if:
 - a. A permit space has obstructions or turns that would prevent pull on the retrieval line from being transmitted to the entrant, or
 - b. A permit space from which an employee being rescued with the retrieval system has projections which would injure the employee if forcefully removed.
 - c. A permit space when entered by an entrant using an air supplied respirator and retrieval lines could pose an entanglement hazard, or
 - d. A permit required excavation other than a trench.
- 5) A properly trained individual shall test the atmosphere for oxygen content, flammable gases, and potential toxic air contaminants prior and during entry. Each entrant shall be required to wear an air-monitoring instrument if the confined space is large enough and/or has a potentially hazardous atmosphere, excavations are exempt from this requirement unless working with unknown drums or containers.
- 6) During any confined space entry, all safety rules and procedures shall be followed.
- 7) At least one attendant should be provided outside the permit space into which entry is authorized for the duration of entry operations.

- 8) Personal protective equipment, including respirators, shall be provided to entrants as necessary for safe entry into the confined space and used properly.
 - a. All PPE must be approved by the Confined Space Entry Supervisor.
 - b. An atmosphere supplied breathing apparatus shall be used for entry into an <u>unknown</u> atmosphere. The Rescue Team, with self-contained breathing apparatus (SCBA) must be present on-site and immediately available if entry is into an atmosphere that is actually or potentially immediately dangerous to life or health.
- 9) Electrical equipment used in the confined space shall be appropriate for the hazard and meet the requirements of the National Electric Code if a hazardous atmosphere is present.
- 10) Any condition making removal of an entrance cover unsafe (i.e. pressured differential, physical obstacles, etc.) shall be eliminated before the cover is removed.
 - a. When the cover has been removed, the opening(s) shall be promptly guarded to prevent accidental fall into the opening and prevent objects from falling into the opening.
 - b. Appropriate vehicle and pedestrian barriers shall be used to protect workers.
- 11) Metal ladders shall not be used when working around electrical equipment.
- 12) Any use of chemicals or welding, soldering, or cutting operations must be approved by the Confined Space Entry Supervisor.

6.0 General Requirements

6.1. Workplace Evaluation

The Confined Space Program Administrator will coordinate/conduct an evaluation of the workplace to determine if confined spaces are present. A detailed assessment will be made of each space in order to determine type and location of each space, its dimensions and number of exits, the reason(s) for entry, actual or potential health and safety hazards, and its classification (permit or non-permit). The assessment will also specify the equipment and personal protective equipment (PPE) required for entry and any special precautions that must be followed for safe entry and work in the confined space. The results of the assessment will be recorded on a Confined Space Hazard Assessment Form (See Form I - Part 1 and 2). It is required that all affected employees be trained for their respective duties, prior to their entry

6.2. Identification of Confined Spaces

Effective means of identifying confined spaces (i.e. training, etc.) may be used to prevent unauthorized entry.

- 1) Warning Signs and Posting
 - a. When using warning signs or placards for the identification of Confined Spaces, all types shall be printed both in English and (if applicable) in the predominant language of any non-English reading employees.

- b. Where confined space entry symbols are established, they shall also be used in conjunction with a warning sign.
- c. Signs shall include, but not necessarily be limited to, the following information:

i. DANGER: PERMIT REQUIRED CONFINED SPACE - DO NOT ENTER UNLESS AUTHORIZED

- d. The following statements shall be added in large letters to the warning sign when a specific work practice must be performed or when specific safety equipment is necessary:
 - i. Respirator Required For Entry
 - ii. Lifeline Required For Entry
 - iii. Hot Work Permit-Required
- e. Signs are <u>not required</u> at manholes, or any other entry, located in public traffic areas.

6.3. Atmospheric Requirements Prior to Entry:

The atmosphere in the confined space within the entrant's immediate area may be continuously monitored for oxygen and combustible gas and any other hazardous substance which the employer has reason to believe may be present in the confined space. Excluding excavations greater the 4 feet in depth which will be checked initially and then periodically thereafter unless determined otherwise by the Confined Space Entry Supervisor.

Before entering a confined space, the following atmospheric conditions <u>must</u> be met:

- 1) The oxygen level is between 19.5% and 23.0% (22% for USACE sites).
- 2) The concentrations of flammable gas, vapors, or mists are below 10% of their Lower Explosive Limits (LEL).
- 3) The level of airborne hydrogen sulfide (H₂S) is below 10 parts per million (ppm).
- 4) Toxic air contaminates are less than the OSHA Permissible Exposure Limit (PEL). **Note:** If the substance does not have a PEL, use the Threshold Limit Value (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH).
- 5) Atmospheric concentrations of toxic substances are below what is considered as the IDLH.
- 6) The level of carbon monoxide (CO) is less than 35 ppm.

Entry into a confined space is **not** allowed if monitoring indicates deficiency in any of these categories. Respirators or a self-contained breathing apparatus (SCBA) shall not to be used to allow entry into deficient atmospheres unless specifically approved in writing by Sevenson's Safety and Health Manager (and the USACE Contracting Officer's Representative on USACE sites).

In order to achieve and maintain a safe atmosphere, one or more actions may have to be

taken to render the space safe for human occupancy. This could include:

- 1) <u>Isolation</u> precautions taken to prevent release of material and/or energy into the space. This can be achieved through blinding, blanking, disconnecting, lockout/tagout, or removal of incoming pipes or related energy sources.
- 2) <u>Ventilation</u> purging, inserting, flushing, or otherwise ventilating the space with fresh air. The replacement air will displace the contaminated air allowing for safe entry. This can be accomplished by removing ports and openings or by mechanically ventilating the vessel.
- 3) <u>Separation</u> where there is a possibility of external hazards, the space may require barricades to protect the entrants from falling objects or from unauthorized entry.

6.4. Ventilation

If a confined space being entered is found to contain a hazardous atmosphere, forced ventilation may be provided for a period of time in order to bring the air quality within the acceptable limits. Once the determined ventilation period expires, employees shall monitor the confined space according to subsection entitled "Air Monitoring". If the sampling shows that a hazard still exists, then additional ventilation and sampling may be required.

Note: Control of atmospheric hazards through forced ventilation does not constitute elimination of hazards.

If the hazard still exists after repeated ventilation steps, the confined space shall then be considered a permit-required confined space and the Confined Space Entry Team (entrant, attendant, and Confined Space Entry Supervisor) <u>must</u> follow the proper procedures for permit-required confined space entry.

Note: Forced ventilation <u>may not</u> be used in lieu of monitoring. Consideration must also be given to the possibility of static discharge that could be a source of ignition.

Forced air ventilation should be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees leave.

Whenever ventilation is used, employees shall:

- 1) Keep the blower controls at least 10 feet from the confined space, and out of the wind or downwind from the entrance to the confined space.
- 2) Use a ventilation blower that is designed to be intrinsically safe if the possibility of an explosive atmosphere could exists.
- 3) Ensure that the exhaust systems are designed and placed so that they protect employees in the surrounding area from being contaminated.
- 4) Ensure that the ventilation system is fully operational and air is supplied from a clean source.
- 5) Ensure that contaminated air is not recirculated into the confined space.
- 6) Purge the ventilation hose outlet for at least one-minute (at street or blower level if possible) before inserting the hose into the confined space.

7) Maintain continuous local ventilation when toxic atmospheres are being produced as part of a work procedure (i.e., welding, painting or cleaning operations).

6.5. Lockout/Isolation

Each confined space (if applicable) shall have its own specific written lockout/isolation procedures. These procedures will be posted above and/or next to the entrance of the confined space, where feasible.

- 1) <u>Electrical Isolation</u>: In order to prevent employees from being exposed to activation of moving parts, or from being exposed to energized objects, authorized entrants shall lockout circuit breakers and/or the disconnect in the open (off) position with a key-type lock. If more than one authorized entrant is to be inside the confined space, each employee must place his/her own lock on the circuit breaker or disconnect.
- 2) Mechanical Isolation: All equipment with moving mechanical parts that could unexpectedly rotate or move will be blocked in such a way that there can be no accidental rotation or movement. Isolation of mechanical parts can be performed by disconnecting linkages or removing drive belts and/or chains.
- 3) <u>Blanking</u>: A solid plate or cup capable of withstanding the maximum pressure of the gas or liquid inside the pipe may be placed across a pipe or duct to prevent unexpected release of the contents.
- 4) <u>Line Isolation</u>: Lines can be isolated by 1) double blocking and bleeding the line or 2) by blocking two closed in-line valves or 3) blocking or bleeding open to the outside atmosphere the drawn or the bleed-in line between the two closed valves.

6.6. Air Monitoring

Before any <u>permit required</u> confined space may be entered by any employee, the entry supervisor (or designee if qualified) <u>must</u> monitor the atmosphere of the confined space to determine that the characteristics of the air for all levels and all areas within the confined space are safe. The atmosphere within the authorized entrant's immediate area should be continuously monitored for oxygen, combustible gases and any other hazardous substance.

When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

Note: Authorized entrants and/or their authorized representatives shall be provided an opportunity to observe the atmospheric testing of the confined space that is conducted prior to entry and subsequent testing. Reevaluation of the permit space shall be done in presence of the authorized entrant or employee's authorized representative who requests the reevaluation.

Sampling Devices

 A direct readout sampling device which can simultaneously test for oxygen, hydrogen sulfide and/or carbon monoxide and combustible gas without manual switching shall be used to sample the atmosphere of the confined space.

- 2) The sampling device shall be equipped with an audible and visible warning device that warns the entrant and/or attendant of the hazardous atmosphere in the permit space.
- 3) Sampling devices shall be calibrated relative to the oxygen content of the ambient air at the time of sampling. Calibration of the sampling device relative to the oxygen content shall be performed where the 20.9% natural content of oxygen in the air is most likely to occur.

Note: Oxygen calibration should not be performed near a confined space opening.

- 4) A sampling device, which has a zero set, shall be zeroed in a clean atmosphere before each sampling. Calibration of a sampling device shall be conducted daily before each use.
- 5) <u>Non-sparking Equipment</u>: When sampling the atmosphere of a confined space, the sampling device shall have an attached non-sparking probe.
- 6) Manhole Sampling: When a confined space entry is by means of a manhole, a probe shall be inserted through the pick hole of the manhole cover, or the manhole cover shall be preyed open on the downwind side to allow just enough room for insertion of the probe or other sampling device.
- 7) <u>Intrinsically Safe:</u> When the confined space to be entered is expected to have combustible vapors present, employees shall be required to use an approved explosion-proof or intrinsically safe sampling device.

6.7. Assessment of Additional Hazards

Before entering a confined space, the Confined Space Entry Supervisor or in his absence another member of the health and safety staff, shall conduct an assessment of any <u>additional hazards</u> which the entrant may encounter during the confined space entry. This assessment shall include, but is not limited to, a review of the following additional hazards:

- 1) Thermal hazards due to extremes in hot and cold temperatures.
- 2) Engulfment Hazards due to loose, granular materials, such as sand, coal, or ash, stored in bins or hoppers.
- 3) Noise hazards, which can affect hearing and emergency communications.
- 4) Slick/wet surfaces, which can increase the risk to slips and falls. Wet surfaces also increase the risk and effects of shocks from electrical tools, machinery, and circuitry.
- 5) Falling Objects from work being performed above an employee or by objects falling through open confined space entrances.
- 6) Mechanical equipment that is required to be operating during the entry.
- 7) Electrical Hazards from exposed wires, power lines, etc.
- 8) Fall Hazards.
- 9) Biological Hazards.

6.8. Emergency Rescue

Note: The OSHA Confined Space Standard allows two options for rescue operations. The Confined Space Administrator and Confined Space Entry Supervisor must select <u>one</u> of the following types of rescue for each permit required confined space identified at the Site.

6.8.1. Emergency Service Confined Space Rescue

Prior to utilizing a rescue service/contractor, the Confined Space Program Administrator shall:

1) Evaluate the prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified.

Note: What is considered "timely" will vary according to the specific hazards involved in each entry;

- 2) Evaluate the prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;
- 3) Select a rescue team or service that has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified, and is equipped for and proficient in performing the needed rescue services;
- 4) Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and
- 5) Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

Note: OSHA 29 CFR 1910.146 Appendix F contains examples of criteria that employers can use in evaluating prospective rescuers.

6.8.2. On-site Confined Space Rescue

In the event that a confined space related emergency is expected, all employees involved in the rescue shall be provided with the proper emergency rescue training, PPE, and rescue equipment needed in order to make a safe rescue attempt, at no cost to the employees.

- 1) Before a confined space rescue attempt is made, the following equipment must be available near the entrance of the confined space:
 - a. Personal Protective Equipment
 - 1. Fully charged SCBA with at least a 30-minute air supply or a Type C airline respirator with an emergency escape air tank.
 - 2. Protective clothing/gloves, if needed
 - 3. Head protection, if needed
 - 4. Hearing protection, if needed

- 5. Eye protection
- 6. Communication devices

b. Retrieval equipment

1. Full body harness and lifeline

Note: Wristlets may be used in lieu of the full body harness if the employer can demonstrate that the use of a full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest way and most effective alternative.

2. Winch/hoist fully capable of retrieving personnel from a vertical type confined space more than five feet deep.

Retrieval line shall be attached at the center of the entrants back near shoulder level, above the entrants head, or at another point which presents a profile small enough for the successful removal of the entrant. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.

- 3. Ladders.
- c. Emergency equipment:
 - 1. First aid kit
 - 2. Fire extinguisher(s) appropriate for the situation
- 2) <u>Duties of Rescuing Attendants</u> (Non-Fire Emergency)

In the event that either a non-permit or permit-required confined space non-fire related emergency rescue occurs, rescuing attendants shall follow the following procedures:

- a. Alert the employees in the confined space to immediately vacate the space and verify that the employees understood these instructions.
- b. Notify the following personnel via a two-way radio or telephone with detailed information about the emergency.
 - 1. Rescue Service
 - 2. Confined Space Entry Supervisor and SSHO

Note: The Confined Space Entry Supervisor or area supervisor will then request assistance from the Local Fire Department if medical attention is needed.

- c. Begin emergency extraction from outside of the confined space:
 - 1. Verify that all employees are exiting the confined space. If not, then perform the following:
 - 2. Notify the Confined Space Entry Supervisor that the employee(s) are disabled.

- 3. Begin winching/hoisting employee(s) from the confined space.
- 4. Do **not** enter the confined space until help arrives.
- 3) <u>Duties of Rescuing Attendants Fire Emergency</u>
 - a. No attempt should be made to enter a burning confined space.
 - b. Standby personnel shall immediately call 911 and will indicate that a fire emergency is involved and the location of the confined space.
 - c. The attendant(s) shall attempt to remove the employee or employees via the hoist/winch from outside the confined space.
- 4) Rescue Attempt. Upon arriving at the confined space, the rescue service shall:
 - a. Sample the air in the confined space.

Note: Entry is **not** permitted if the air quality in the confined space is outside the acceptable limit for combustible gas. If the combustible gas content is more than 10% of the LEL, the confined space must be ventilated and/or the source of the combustible gas shut off or removed before entry is permitted.

- b. Assess the potential hazards that rescue personnel could encounter by entering the space.
- c. If entry conditions are determined safe, enter the confined space with the proper retrieval equipment, personal protective equipment, and a fully charged SCBA or a supplied airline respirator equipped with an emergency air tank.
- d. Search for the disabled employee(s).
- e. Assess the type of accident/injuries.
- f. Administer proper first aid/CPR, if needed.
- g. Begin extraction procedures, taking care not to cause further injury.
- 5) <u>Substance Information</u>. If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other written information is required to be kept at the work site, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

7.0 Employee Training

All employees who are required to enter a Permit Required Confined Space or serve as an attendant shall be trained and properly equipped to recognize, understand, and control hazards that may be encountered in the confined space. Training records (certification) shall be available for inspection by employees and their authorized representative.

- 7.1. Training shall be provided to each affected employee:
 - 1) Before the employee is first assigned duties under this section.
 - 2) Before there is a change in assigned duties.
 - 3) When there is a change in the permit space operations that present a hazard

about which an affected employee has not previously been trained.

4) Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

7.2. Confined Space Entry

<u>All employees</u> who are required to either enter a confined space or serve, as attendants shall receive training in the following areas:

- 1) Associated safety and health hazards of the confined space entry
- 2) Duties of entrants and attendants
- 3) Air monitoring and attendants
- 4) Respiratory protection
- 5) Emergency rescue procedures
- 6) Lockout isolation procedures

Training shall be provided to each affected employee:

- 1) Before the employee is first assigned confined space entry duties.
- 2) Before there is a change in assigned duties.
- 3) Whenever there is change in confined space operations that presents a hazard about which the employee has been previously trained.

7.3. Personal Protective Equipment (PPE)

All employees who are required to either enter a confined space and/or serve as attendants, shall receive training on the proper use of any PPE needed to perform the job safely, such as, protective clothing and suits, gloves, respiratory protection; confined space rescue equipment, body harnesses, hearing protection, and eye/face, hand, foot and head protection.

7.4. Emergency Rescue Training

An emergency rescue employee(s) who is designated to provide permit space rescue and emergency services shall be trained in the following measures with an adequate level of proficiency shown in:

- 1) The use of personal protective equipment (PPE) needed to conduct permit space rescues safely.
- 2) The assigned rescue duties (same as entrants).
- 3) Basic first aid and CPR At least one member of the rescue team or emergency service shall hold a current certification in first aid and CPR.

Emergency rescue personnel <u>shall</u> perform a permit space rescue at least once every <u>12 months</u> by means of simulated rescue operations in which dummies, manikins, or actual persons are removed from the actual permit spaces or from representative permit spaces.

Representative permit spaces shall, with respect to opening size, configuration, and

accessibility, simulate the types of permit spaces from which rescue is to be performed.

8.0 Work Involving Subcontractors

- 8.1. When the Site Superintendent arranges to have employees of a subcontractor perform work that involves confined space entry, the Confined Space Entry Program Administrator or the Confined Space Entry Supervisor shall:
 - 1) Inform the contractor that the workplace contains permit spaces and the permitted space entry is allowed only through compliance with a permit space program that complies with CFR 1910.146.
 - 2) Inform the contractor of the hazards identified and Sevenson's experience with the confined space that made the space in question a confined space.
 - 3) Coordinate entry operations with the subcontractor when personnel from both employers will be working in or near the confined space.
 - 4) Verify that the subcontractor has an appropriate Confined Space Entry program.
- 8.2. Debrief the contractor at the conclusion of the confined space entry operation(s) regarding the <u>permit space</u> entry procedures that were followed (if applicable) and the hazards that were confronted or created during entry operations.

9.0 Non- Permit Required Confined Space Entry

- 9.1. No employee shall enter or work in a <u>non-permit</u> confined space unless the following steps have been performed:
 - 1) Obtains permission to enter the confined space from the Confined Space Entry Supervisor, or in their absence another member of the health and safety staff.
 - 2) Obtains and uses the proper PPE, tools and other equipment.
 - 3) Complies with all other applicable confined space entry procedures

Note: Atmospheric testing of a non-permit confined space is <u>not required</u> by the OSHA Confined Space standard. However, testing the atmosphere for toxic gases and oxygen deficiency prior to entering the confined space is recommended if a suitable, and properly calibrated, sampling devise is available. The OSHA Standard also does not require an attendant for entry into a non-permit required confined space, however having an attendant present (if practical) is again strongly recommended. <u>Other OSHA standards</u> (i.e. Personal Protective Equipment, Respiratory Protection, etc.) still apply to entry into all confined spaces.

10.0 Reclassification of a Permit Required Confined Space to Non-Permit Confined Space

- 10.1. A permit required confined space may be entered as a non-permit confined space if the permit space contains no actual or potential atmospheric hazard, and all other hazards within the space can be eliminated without entry into the space. Hazards may be eliminated, for example, by:
 - 1) Following all designated lockout/tagout procedures for the space in question;
 - 2) Emptying a vessel to remove an engulfment or other content hazard;
 - 3) Draining chemical tanks of their contents, purging any residual chemicals with

water, and ventilating the space after purging is complete;

4) Shutting boilers down, opening all access ports to allow for temperature reduction and natural ventilation, and by taking all appropriate safety measures (i.e. locking out machines, etc.) to render the space safe for entry.

If the hazards arise within a permit space that has been declassified to a non-permit space, each employee in the space shall exit the space as soon as possible. The employer shall then reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable provisions.

11.0 Reclassification of a Non-Permit confined Space to a Permit Required Confined Space

- 11.1. When there are changes in the use of a non-permit confined space that may increase the hazards, the space shall be reevaluated and classified as a permit-required space if necessary. Reclassification would be required, for situations such as:
 - 1) During application of solvents, paints chemicals or other materials that could potentially create a hazardous atmosphere in a confined space.
 - 2) During welding, cutting, brazing, or soldering in some confined spaces with limited ventilation.
- 11.2. The Confined Space Entry Supervisor shall reevaluate and reclassify confined spaces as necessary depending upon the work activities to be performed in these spaces.

12.0 Other Safety Rules and Work Practices

12.1.In order to protect the safety and health of all employees associated with the confined space entry, employees (and supervisors) shall comply with the following safety rules and work practices:

1) General Safety Rules

- a. All employees within the confined space and those employees assigned to serve, as attendants shall be in constant two-way communication.
- b. All employees required to wear respiratory protection must properly use and maintain properly the respirator in accordance with 29 CFR 1910.134 and the specific instructions provided to them by their supervisor and during training.
- c. Smoking is not permitted within the confined space or within a 10 feet radius of the entrance of a confined space.
- d. All employees shall comply with the requirements and limitations on the confined space entry permit, including the maximum number of employees permitted to work in the confined space.

2) <u>Underground and Aboveground Storage Tanks</u>

Before any employee enters a boiler or any other vessel type confined space, the following safety precautions shall be implemented:

a. Ensure there is only residual material left in the bottom of the underground storage tank (UST) before an entry.

- b. Ensure that all lines leading into and away from the tank(s) are blanked, blinded, and/or double blocked and bled before an entry is allowed.
- c. Ensure that all employees entering a tank are secured by a lifeline to a winch or other retrieval device outside the confined space.
- d. Treat all boilers and other vessel-type confined space in a manner consistent with that of other confined spaces.

Note: If a confined space entry is required for fuel oil (diesel fuel) tank the LEL must be determined with a Photoionization Detector (PID). This is due to LEL sensor¹ technology and its response to heavy hydrocarbon fuels is unreliable. The PID reading must be less then 250 ppm for entry into the tank in Level C PPE with OVA cartridges.

3) Traffic Safety

- a. Entrances to confined spaces that are located in streets shall be guarded in accordance with the following requirements:
 - 1. Employees shall activate the following warning lights
 - a. Vehicle's beacon light
 - b. Four-way hazard flashers
- b. Employees shall park the vehicle used to transport their confined space equipment in such a way that the vehicle does not obstruct the normal traffic flow and shall, when possible, use the vehicle to provide protection for the employees.
- c. Employees shall park the vehicle in such a manner that the vehicles exhaust fumes cannot accumulate in the confined space. If this is not possible, the vehicle's exhaust pipe shall be extended away from the confined space.
- d. Employees shall properly place traffic safety cones around the manhole and any vehicle in accordance with state and federal traffic ordinances to adequately warn oncoming traffic.
- e. Traffic safety cones shall be visible to traffic in all directions and in such a manner as to protect the employees from the traffic flow. Traffic cones should also be placed far enough form the confined space to give drives adequate notice.

When working on the street or an easement surface, all standby and flag person employees shall at all times wear a traffic safety vest or the equivalent. A flag person(s) shall be added to the Confined Space Entry Team when the need arises. The flag person(s) shall not be considered as the required attendant for a permit required confined space.

4) <u>Cleaning purposes</u>

When a confined space entry is required for cleaning purposes, the Confined Space Entry Supervisor or in their absence another member of the health and

¹ Application Note AP-219, "Using PID for 10% of LEL Decisions" Revision 1, RAE Systems, Inc., San Jose, CA,

safety staff, shall review and authorize the procedures and processes to be used while cleaning the confined space before entry can take place.

The following specific cleaning methods shall be used depending upon the product or products in the space:

- a. Flammable/Combustible Atmosphere: The atmosphere within the confined space shall be purged with an inert gas if the atmosphere is above the upper flammable limit to remove the flammable and/or combustible substance before forced ventilation of the space. Initial cleaning shall be done, if possible, from outside the tank.
- b. Cleaning Process Hazards: When additional hazards are created by the cleaning process, the Confined Space Entry Supervisor shall develop additional safety procedures to address the newly created hazards. These special procedures shall be developed before a confined space cleaning process takes place.

5) Use of equipment and tools inside the confined space

When the confined space entry requires the use of equipment and tools inside the space, this equipment shall be inspected and must meet the following requirements:

- a. Hand tools must be in good repair and be kept clean.
- b. Portable electrical tools, equipment, and lighting shall be listed Class I, Division I, Group D. All grounds must be checked before electrical equipment is used in a confined space. **Note:** Ground Fault Protectors should be used whenever possible to protect employees from electrical shock when working in damp or wet locations.
- c. All electrical cords, tools, and equipment must be constructed of a heavy-duty, double-insulated cord and equipped with a 3-prong plug. Note: double insulated tools with a 2-prong pug may be appropriate in some cases.
- d. All electrical cords, tools, and equipment must be visually inspected for defects before being used in a confined space. If found defective, they will be replaced, repaired, or destroyed before any employee enters the confined space.
- e. Cylinders of compressed gases must never be taken into a confined space and will be turned off at the cylinder valve when not in use. Exempt from this rule are cylinders that are part of SCBA or resuscitation equipment.
- f. Ladders must be adequately secured or of a permanent type which provides the same degree of safety. Note: Permanent ladders must be inspected for rust or corrosion and repaired or replaced if necessary.

All equipment that may be used in a flammable atmosphere shall be approved as either explosion proof or intrinsically safe for the atmosphere and shall be approved by a recognized testing laboratory (i.e., UL, FM).

13.0 Recordkeeping

- 13.1. The following records will be maintained on file for at least one year:
 - 1) <u>Employee Training Records</u> including dates and the names of attendees.
 - 2) <u>Confined Space Entry Equipment Inspections</u> including dates, results, and corrective action.
 - 3) <u>Monitoring Equipment Calibration/Servicing Reports</u> indicating calibration dates and any service conducted by the manufacturer.
 - 4) <u>Confined Space Permits</u> for all Permit Required confined space entries.

14.0 Annual Review

- 14.1. The Confined Space Entry Program Administrator shall review the Confined Space Program at least annually using cancelled Confined Space Permits and other available information and records in order to determine if:
 - 1) Changes should be made to improve the program's overall effectiveness;
 - 2) Additional hazards have been identified within a given space;
 - 3) Additional measures should be taken to protect the entrants;
 - 4) Additional confined spaces should be included within the program; and
 - 5) Some locations can be removed from the program.

CONFINED SPACE HAZARD ASSESSMENT FORM PART I

Hazard Codes:

- 1. Atmosphere is within acceptable limits.
- 2. Contains or has a potential to contain a hazardous atmosphere.
- 3. Contains a material that has the potential for engulfing an entrant (i.e. soil, sand)
- 4. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
- 5. Contains moving parts or machinery.
- 6 Contains any other recognized health or safety hazard.

Confined Space (Tank, Manhole, etc)	Location	Reason(s) for Entry	Classification (Permit Required/Non Permit)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

CONFINED SPACE HAZARD ASSESSMENT FORM PART II

Confined Space (Part I)	Tools/Equipment Required for Entry	PPE Required for Entry	Special Precautions Required for Entry
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Assessment Pe	erformed By	Title	Date

Sevenson Environmental Services, Inc.

CONFINED SPACE PERMIT

Date Location Purpose of Entry &	Time of Issue Description of W	ork			_ Length of _ Equipmer	Permit_ nt ID			
Authorized Entrant	(s)								
Authorized Entrant Will "HOT" Work	be authorized for	this Entry	? 🗆 N	No; □ Yes	(describe)				
HAZARDOUS II	DENTIFICATIO	N							
b. Contains a r c. Has an inter If "Yes", do	may contain a ha material for potent mal configuration escribe	zardous at tial engulf for poten	mosphere ment tial entrap	ment			N/A		
d. Contains the	e following seriou	s safety o	r health H	azards:					
PRE-ENTRY PRI	EPARATION	1	 	ļ					
		YES	N/A		Done			Removed	
				Date	Time	By	Date	Time	By
1. Lines broken and	l/or blanked:								
Line Contents	Location								
a.									
b.									
c.									
2. Drain or at a wor	kable level								
3. Purge - flush and	l vent								
4. Force air to bottom & vent									
5. Lock out power feeds:									
Equip/Location of Lock out									
a.									
b.									

c.									<u> </u>
	ovictoms.								
6. Shut-off heating s	systems								
7. Other:									
TEST TO BE TAK	KEN				_			_	
		Ti	ime	Time	e	Ti	me	Ti	me
		Te	ester	Teste	er	Te	ster	Tes	ster
	P.E.L.	Yes	N/A	Resul	lts	Res	sults	Res	sults
% of Oxygen	19.5% to 23%								
% of LEL	Any % over 10								
Carbon Monoxide	25 ppm								
Hydrogen Sulfide	10 ppm								
VOC									
Temperature	< 110°F/43°C								
PREVENTION OF	F UNAUTHORIZI	ED ENT	TRY						
1. Have Worker(s) to enter been trained for this specific entry? 2. Have Attendants been trained for this specific space? 3. Post "WORKER IN CONFINED SPACE" Sign 4. Set-up the following additional barriers:									
MANDATORY SA	FETY EQUIPME	ENT RE	QUIRED						
1. Fire Extinguisher 2. Retrieval Lines 3. Respirator 4. Goggles 5. Hearing Protection 6. Protective Clothing 7. Special Boots or Shoes 8. Gloves 9. Other Safety Equipment Required					YE	ES N/A			

COMMUNICATION PROCEDURES AND EQUIPMENT	то ве и	JSED FO	OR THIS ENT	RY
(Verify that chosen equipment is in place and operation.)			V 1 1	
1			Verified by:	
				=
2			-	-
RESCUE EQUIPMENT TO BE PROVIDED ON-SITE				
RESCUE EQUITMENT TO BE I ROVIDED ON-SITE	YES	N/A		
a. Two chest harnesses or two wristlets		IN/A		
b. Two five minute supplied air escape respirators	Ä	Ä		
c. One 30 minute S.C.B.A.	П	ī		
d. One emergency siren				
e. Man basket				
f. Retrieval wench				
g. Other necessary Rescue Equipment				
IN CASE OF EMERGENCY				
Rescue Service			Phone Number	r or Ext.
1,				
2				
3			-	
onfined Space Entry Supervisor or designee must sign below onditions necessary for SAFE entry have been met.	w AFTER a	all the ab	ove actions are	fully understood and
Authorization of	of Entry			
Signature (if not CSE Supervisor, add title)		Ι	Date	Time
Termination o	f Entrv			
	· J			
Signature		Т	Date	Time

Appendix J

Excavation Plan



Excavation & Materials Handling Plan Rev.1

I. Introduction

The purpose of the Excavation and Materials Handling Plan is to present the methods and procedures for excavation of contaminated soil, procedures for temporary support systems; and methods for backfilling, compacting, and grading. If encountered, Sevenson will be responsible for obtaining any and all permits necessary for excavation, removal of Underground Storage Tanks (USTs), and excavation around underground utilities and as otherwise to complete the work in accordance with Federal, State and local regulatory requirements.

II. Excavations Less than Five Feet in Depth

Excavations that are less than five feet in depth require an Activity Hazard Analysis is required and an Excavation and Trenching Plan is optional. It is anticipated that all excavations will be less than five feet in depth for this project. This Excavation and Materials Handling Plan is optional and provides guidance as to how material will be excavated during remediation activities at the site.

III. Excavations Greater than Five Feet in Depth

In the event an excavation greater than five feet in depth is required a more detailed Excavation Plan will be developed that outlines the following items:

- Competent Person (including credentials)
- Diagram or sketch of the area where the work is to be done.
- Projected depths of the excavation
- Projected soil types and method for determination
- Planned method of shoring, sloping or benching
- Planned method for confined space entry, trench access and egress as well as atmospheric monitoring
- Location of utility shut offs
- Proposed methods for preventing damage to overhead utilities, trees designated to remain, and other man made facilities or natural features designated to remain within or adjacent to the construction right of way
- Plan for management of excavated soil/asphalt/concrete
- Plan for traffic control
- Location of underground utilities

Excavation & Materials Handling Plan Rev.1

IV. Competent Person

The Competent Person for excavations at the site will be Mr. Perry Novak. Mr. Novak's training records are located in Appendix A of the Accident Prevention Plan.

V. Excavation

Sevenson will, as a minimum, excavate in the areas and depths of the excavation as indicated on the Contract Drawings or as directed by the Contracting Officer

The project site will be divided into 30-foot square grids, delineated by survey coordinates throughout the areas to be excavated. Additional grids can be added to the layout in the event the contaminated areas increase beyond the limits shown on the drawings. Each grid represents approximately 33.33 cubic yards of material in one-foot vertical increments (a 3 foot excavation would equal 100cy's, etc.). Sevenson will limit the open excavation areas to control any potential dust emissions. Grids will be excavated to the depth indicated on the contract drawings or as directed by the Contracting Officer. No additional or over excavation of material will be performed unless authorized by the USACE.

The drawings indicate three clusters of properties to be remediated. The excavation will be sequenced so that work will be performed by cluster and not individual property (although work will be reported by property). Sevenson anticipates collecting waste characterization samples on a particular property prior to the onset of excavation activities so that the excavated material can be direct loaded and shipped without having to wait for sample results. Once all the controls measures (surveys, soil erosion, fencing, CRZ's, air monitoring, etc.) on the property to be remediated have been performed and installed, excavation will commence. Excavation will be accomplished by use of a small excavator (Komatsu PC 80 or equal), excavating the soils to the depths indicated. If necessary, a small bulldozer (Komatsu D-37or equal) will push contaminated material to a loading stockpile area. Intermodal or roll-off trucks will be stationed at the curb line and will be direct loaded by an excavator from the stockpile generated by the excavation activities. Work will be initiated at the rear of the property and proceed to the front towards the curb line. The existing post excavation data generated by the engineer determines the depth of excavation and no additional post excavation sampling will be performed. Upon completion of the excavation to the lines and grades indicated a survey will be performed to ensure that excavation elevations have been achieved. Once backfill operation have commenced, excavation activities will be started at the next cluster of properties to be remediated.

Excavation & Materials Handling Plan Rev.1

Waste characterization sampling and analysis will be performed in accordance with Sevenson's Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP).

Sevenson's Soil Erosion and Sediment Control Plan will be enforced during all excavation activities

Soil erosion and sediment control measures will be implemented during excavation activities. Control measures include the installation of silt fences, hay bales and geotextile, as applicable. Spraying soils with a water mist, utilizing water obtained from local fire hydrants, will control dust. A water truck will be utilized to keep dust off of haul roads and as an additional source of water for excavation locations.

Sevenson will protect existing trees, shrubs, facilities, structures, etc., by use of temporary orange safety fencing, flagging, plywood or other means, as required.

All items having any apparent historical or archaeological interest that is discovered in the course of any construction or excavation activities will be carefully preserved. Sevenson will leave the archaeological find undisturbed and will immediately report the find to the USACE so that the proper authorities may be notified. Historical or archaeological finds that might require work stoppages are not anticipated to occur during construction. Sevenson will decontaminate contaminated finds prior to removal from the site.

Organic materials including stumps, roots, railroad ties, and debris encountered during excavation will be considered grubbed material and will be handled, stored and disposed of as contaminated material.

Open excavations will be barricaded, fenced, or flagged to delineate this hazard.

The contaminated material will be excavated by a track backhoe. Polyethylene will be utilized to cover the sidewalls of the vehicle to be loaded to prevent contamination coming into contact with the exterior sidewalls of the vehicle. Polyethylene will also be place on the ground where the truck is being loaded to prevent the ground surface coming into contact with contaminated material. If there are signs of contamination on the truck, the truck will be broom swept prior to moving to the scale for weighing. Alternately, Sevenson may opt to use a decontamination station at the egress of the exclusion zone to decontaminate vehicles thus preventing contamination leaving the zone. An intermodal or roll-off truck (truck) will be placed in close proximity to the loading stockpile, on the polyethylene, and the backhoe

will load the contaminated material directly into the truck. The backhoe operator will use caution while loading the vehicle to prevent the vehicle becoming contaminated. Sevenson will not excavate or load material in severe rain. Additionally, no material will be excavated in areas where water is standing. Once the truck is loaded, the truck will be staged on Borough property until weighed, manifested and released for shipping. Trucks will tarped at the loading area prior to proceeding to the staging area. No vehicle will be shipped from the site that has free liquids in the container. Once the vehicle is weighed and covered/tarped, it will be transported to the disposal facility.

Surface surveying will be performed once the remedial excavation depths have been achieved. As previously mentioned, the site will be dived into 30-foot grids. Post excavation sampling and analysis will not be performed as the engineer had previously performed this function. A draft of this sheet is presented at the end of this plan. Additionally, Sevenson will utilize a grid system so that excavation and backfill areas can be tracked as the work progresses.

Sevenson anticipates in-sitsu sampling of the properties soil material for waste characterization at a minimum rate of one sample for every 250 tons or as required by the disposal facility. Analytical results will be submitted to and reviewed with the USACE prior to shipping the material off-site. Sampling and analysis will be performed in accordance with Sevenson's UFP-QAPP.

At the completion of excavation and backfilling activities in the Exclusion Zone, Sevenson will remove any sediment tracked into the CRZ and dispose of it as contaminated material.

VI. Surface Water Control

Sevenson will install berms, swales, and other measures necessary to prevent surface water from entering and exiting excavations. Surface water will be directed away from excavation and construction sites so as to prevent erosion and to prevent surface water run on from becoming contaminated by accumulating in excavations. All diverted water will be directed to existing drain ways and storm sewer systems so as to not flood adjacent structures or properties. Backfill surfaces will be protected to prevent erosion and sloughing. Excavations will be performed so that the site and the surrounding areas at the site will be drained.

VII. Existing Utilities

Sevenson will contact the New Jersey One Call System (1-800-272-1000), Public utilities, New Jersey American Water (NJA), and the Borough of South Plainfield, and other local utility authorities to mark out underground utilities prior to performing any excavation activities. The locations of these lines are approximate on the Contract Drawings and will be field-verified by the utility authorities. Prior to any excavation work, utility clearances will be documented with a completed Field Safety Checklist.

Sevenson will mark out on-site utilities, to prevent damaging, or disturbing utilities during construction. During excavation activities, barricades, fencing, or flagging will be utilized to delineate the areas of underground utilities so that heavy machinery does not disturb the utility. Backfilling will be performed by spreading the material over the utility with a small bulldozer, avoiding running on top of the utility. A laborer will be stationed at the excavation and backfill locations to ensure the machinery does not damage the utility.

Utilities such as telephone poles, water pipes, gas pipes, sewer lines, property survey monuments, and USTs that are encountered during excavation may require temporary structural support. Physical removal of utilities will be coordinated with and performed by local utility authorities, as required.

VIII. Underground Storage Tanks

If a UST is encountered during excavation, Sevenson will immediately notify the USACE.

USTs determined to be leaking or in poor condition will be removed and disposed of in accordance with an approved Underground Storage Tank Removal and Closure Plan. Heating oil, sediment, and associated piping will be removed from USTs to prevent any accidental releases. Sevenson will obtain a permit from the Local Fire Department for UST removal.

Contaminated underground utilities encountered during excavation will be decontaminated using a steel wire or stiff bristled brush to remove any fixed material from the utility.

IX. Decontamination of Subsurface Structures

Upon the completion of excavations where utilities or foundations are exposed the surface will be decontaminated prior to backfilling. Sevenson will remove all attached soil material and debris from the structures using trowels, scrapers, wire brushes, vacuuming, or other methods approved by the USACE.

X. Preparation of Ground Surface for Fill

After contaminated material excavation has been completed, and prior to placement of fill material, the exposed surface of the excavations will be examined to determine the presence of ruts, disturbed ground, wet spots, soft areas, organic matter, or other features undesirable in the sub-grade. Undesirable features will be removed and corrected before placing fill material.

Fill material will be moisture conditioned, as required, to obtain the specified moisture content and density for compaction.

Compaction over underground utilities will be performed by hand tamping techniques.

XI. Backfilling

Backfill material will be obtained from an off-site source. Prior to backfill being brought to the site, the material will be sampled and analyzed in accordance with the specifications to ensure the material complies with the backfill requirements prior to being utilized for backfill on site. Sevenson will coordinate the delivery of off site backfill material to limit stockpiling the material. Backfill will not be placed within excavations without the notification or approval of the USACE.

Due to the small size of some of the clusters Sevenson may be required to stockpile clean fill materials on the Borough's property which is located away from the remedial properties. Stockpiles management will consist of preparing areas so that earthen berms encompass the stockpiles to prevent water running into the stockpiled material. Stockpiles will be covered daily, using 6 mil polyethylene, held down with sand bags. Sevenson will utilize the methods described in the Soil Erosion and Sediment Control Plan to manage the stockpiles. Stockpiles will be kept to a minimum as agreed upon by the USACE and USEPA.

Frozen materials will not be placed in the excavations, nor will fill be placed upon frozen material. All such materials will be removed from the excavations prior to backfilling.

Scrap metal, wood, utilities, pipes, concrete, asphalt, or any other deleterious material will not be used as backfill.

Backfilling will not commence until the excavation has been approved, underground utilities systems have been inspected, tested, and approved, forms removed, and the excavation cleaned of trash and debris.

Backfill will be placed in eight- inch (8") loose lifts. A track bulldozer or utility backhoe will spread fill material. Fill material will be compacted by vibratory drum rollers or double drum walk behind rollers. Heavy equipment will not be used within five feet (5') of an existing underground utility or foundation.

Fill material will be backfilled to the lines and grades shown on the Contract Drawings. Backfilling will not commence until excavations depths have been achieved, all temporary supports have been removed, and approval has been received from the USACE. Backfill will not be placed on snow, ice, standing water, or frozen ground surfaces. Backfill will not be placed when the temperature is below 32□ F, unless approval is received from the USCAE.

Prior to compacting, each fill layer will be plowed, tilled, or broken up; moistened or aerated; and thoroughly mixed, to obtain the moisture content for compaction.

Backfill areas, determined to be inadequately compacted, will be recompacted and retested until the specified criteria have been met.

The following minimum values, expressed as a maximum dry density in accordance with ASTM D 1557, will be used for compaction of clean fill: 90%

All disturbed areas will be graded to provide a smooth and uniform condition/grade.



Appendix K

Critical Lift Program



Critical Lift Program

A critical lift is a non-routine crane lift that requires detailed planning and additional procedures and precautions. Critical lifts include:

- a. Lifts involving hazardous materials (e.g., explosives, highly volatile substances);
- b. Hoisting personnel with a crane or hoist;
- c. Lifts made with more than one crane;
- d. Lifts where the center of gravity could change;
- e. Lifts the operator believes should be considered critical;
- f. Lifts made when the load weight is 75% or more of the rated capacity of the crane load chart or more (not applicable to gantry, overhead, or bridge cranes);
- g. Lifts without the use of outriggers using rubber tire load charts;
- h. Lifts using more than one hoist on the same crane or trolleys;
- i. Lifts involving non-routine or technically difficult rigging arrangement (to include lifts involving Multiple Lift Rigging);
- j. Lifts involving submerged loads (Exception: lifts that were engineered to travel in guided slots throughout the lift and have fixed rigging and/or lifting beams, i.e., intake gates, roller gates, tailgates/logs);
- k. Lifts out of the operator's view; Exception: if hand signals via a signal person in view of the operator or radio communications are available and in use, load does not exceed two tons AND is determined a routing lift by the lift supervisor.

Before making a critical lift, a critical lift plan shall be developed:

- The Critical Lift Plan shall be developed by a qualified person and shall include the crane operator, Superintendent or lift supervisor, and the rigger and signed by all involved personnel prior to the lift.
- For a series of lifts on one project or job, as long as the cranes, personnel, type of loads and configuration do not differ.
- And documented with a copy provided to the Client's Representative or Contracting Officers Representative.

At a minimum the Critical Lift Plan shall include:

- 1. The specific make and model of the crane(s), the line, boom and swing speeds;
- 2. The exact size and weight of the load to be lifted and all crane and rigging components that add to the weight. The manufacture's maximum load limits for the entire range of the lift, as listed in the load charts;
- 3. Shall specify the lift geometry and procedures, including the crane position, height of the lift, the load radius, and the boom length and angle, for the entire range of the lift;

Critical Lift Program

- 4. A site drawing is to be included to identify placement/location(s) of crane(s), adjacent equipment and/or facilities, etc.;
- 5. Shall designate the crane operator, lift supervisor, and rigger and include their qualifications;
- 6. A rigging plan must be included that shows lift points and describes rigging procedures and hardware requirements;
- 7. The plan shall include a description of ground conditions, outrigger or crawler track requirements, and if necessary, the design of mats, necessary to achieve a level, stable foundation of sufficient bearing capacity for the lift;
- 8. For floating crane or derricks, the plan shall describe the operating base or platform condition and any potential maximum list or trim calculations;
- 9. A list of environmental conditions (wind speed, visibility, severe weather, wave action, etc.) under which lift operations are to be stopped;
- 10. A description that specifies coordination and communication requirements during the lift operation;
- 11. If tandem or tailing crane lifts are performed, identify the requirements for an

General rules

- Only licensed crane operators will be assigned to make the lift.
- Only qualified riggers will be used to install rigging for the lift. Qualified riggers shall inspect all rigging prior to use.
- Only designated, qualified signalers will give signals to the operator. However, the operator will obey a STOP signal at all times, no matter who gives the signal.
- The procedure and rigging sketches will be reviewed and approved by the Superintendent and the Safety Officer prior to the lift. The rigging set up will be inspected by the lift supervisor
- A pre-lift meeting will be held with the affected personnel, and the plan and procedures will be reviewed. Any questions will also be resolved at this time.
- After the conclusion of the pre-lift meeting, the lift will be accomplished.

Environmental considerations

- Cranes shall not be operated when wind speeds at the site attain the maximum wind velocity recommendation of the manufacturer. At winds greater than 20 mph, the operator, rigger, lift supervisor, and safety officer shall cease all crane operations, evaluate conditions and determine if the lift shall proceed. The determination to proceed or not shall be documented in the crane operator's logbook as well as the daily safety report.
- If a local storm warning is issued, the lift supervisor, superintendent, or crane operator shall determine whether it is necessary to implement manufactures recommendations for securing the equipment.

Critical Lift Program

- Critical lift operations are to be suspended during weather conditions that produce icing of the crane and hoisting equipment structure or reduced visibility.
- When lightning is observed all crane and hoisting equipment operations shall cease. A period of 30 minutes between subsequent observations shall be observed prior to resuming critical lift operations.
- Critical lifts may only be performed during non-natural light hours for emergency situations.

The following is an example of a Critical Lift Plan. This plan may be modified to site specific information or presentation. However, the required information must still be presented in the Critical Lift Plan.



Lift Identification				
Job Number:	Location:			
Lift Supervisor Name:				
Date of Lift:		Time:		
Lift Description:				
	Approvals (Signatures Requ	nired)		
Lift Supervisor:		Date:		
Rigging Supervisor:		Date:		
Superintendent:		Date:		
Operator 1:		Date:		
Operator 2 (if applicable):		Date:		
Rigger 1:		Date:		
Rigger 2:		Date:		
Signal Person:		Date:		
If engineering Designs Are Used				
Drawing Numbers:				
Attachments (Insert Page Numbers)				
Lift Supervisor, Operator, and Rigger Certifications				
2. Load Charts				
3. Inspection Reports for all Lifting Equipment				
4. Inspection	4. Inspection Reports for all Rigging Equipment			
5. Rigging Plan with drawings				
6. Site map showing crane area, adjacent equipment or facilities				

Critical Lift Load and Capacity Calculations Page 1 of 4

Lif	t Description:					
	Section A					
		Weight of Lo			- Live Load	
1.	Load/Equipment condition	New:	U	Jsed:		
2.	Weight of Load/Equipment Empty					Lbs
3.	Weight of Attachments					Lbs
;	a. Platforms and Ladders				Lbs	
1	 Piping and Accessories 				Lbs	
	c. Liquids Inside					Lbs
(d. Dirt and Debris					Lbs
	e. Internal Trays or Liners					Lbs
	f. Other:					Lbs
	g. Other:					Lbs
4.	Total Amount of Load/Equipment	Weight (A2 th	rough	A3g)		Lbs
				ction B		
	Total Lifted Weight (V	Weight of Load	l/Equi	pment + Ri	gging + (Main) Cran	e Deductions)
1.	Load/Equipment weight plus contingency*	%	7.	Weight o	f Jib Erected	Lbs
2.	Amount of Equipment Weight	Lbs	7a.	. Weight of Jib Stowed		Lbs
3.	Weight of Headache Ball	Lbs	8. Weight of Jib Headache Ball		f Jib Headache Ball	Lbs
4.	Weight of Main Block	Lbs	Lbs 9. Weight of Cable (Load Fail)		f Cable (Load Fail)	Lbs
5.	Weight of Spreader Bar	Lbs	S 10. Auxiliary Boom Head		Boom Head	Lbs
6.	Weight of Slings and Shackles	Lbs				
	se 100% plus some percentage (exarompute Section B2.	nple +10%) to	multip	oly times n	umber in Section A4	to allow for contingency to
T	OTAL LIFTED WEIGHT (Sum B2 through B11)			Lbs		
Sou	rce of Load Weight (A2):					
(Na	me Plate, Drawings, Calculated, We	ight Ticket, Etc	c.)			
Weight and Calculations						
	Print Name			Signat	ture	Date
By:						
Veri	ñed By:					
	(See Page 2)					

Critical Lift Load and Capacity Calculations Page 2 of 4

	Section Capacities of the (N						
1.	Make and Model of Crane:	viaiii) Claile					
2.	Counter Weight Size: Type of I	Boom:					
3.	Lifting Arrangement						
	a. Max. Radius During Lift Feet						
	b. Length of Boom Feet						
	c. Angle of Boom at Pick Degre	ee					
	d. Angle of Boom at Set Degre	ee					
	Rated Capacity Under Most Severe Conditions						
	1. Over Rear Lbs						
	2. Over Front Lbs						
	3. Over Side Lbs						
	f. Rated Capacity for Lift Radius, Crane Configuration, ar	nd Lbs					
4.	Orientation (over front, side, or rear) Jib	LUS					
	a. Is the Jib to be used Yes No						
	b. Length of Jib Feet						
	c. Jib Angle Degree						
	d. Rated Jib Capacity for Lift Radius, Crane Configuration and Orientation (over front, side, or rear)	Lbs					
5.	Load Line/Fall Cable	Lus					
	a. Is Main Block to be used Yes No						
	b. Number of Parts of Cable						
	c. Size of Cable Inches						
	d. Maximum Capacity for Lift Radius, Crane Configuration and Orientation (over front, side, or rear)	on, Lbs					
	Section I						
	Percent of Cranes Capacity						
1.	Total Lifted Weight *100						
	Rated Capacity	%					
	Section 1						
1.	Size of Sling Selection	пдо					
	a. Type of Arrangement	(Spreader, Vertical Slings, etc.)					
	b. Number of Slings to Hook Capacity	3					
	c. Sling Size	Inches					
	d. Sling Length	Feet					
	e. Sling Capacity (at angle used)	Lbs					
	f. Number of Slings to Load	#					
	g. Total Rigging Capacity (E1e x E1f)	Lbs					
Cor	nments:						
C1	al fairing amount and the Vall	C					
Ske	tch of rigging arrangements available Yes No (Can Page)	See page:					
	(See Page	(3)					

Critical Lift Load and Capacity Calculations Page 3 of 4

	Section F		
	Veight to be Lifted by	_	
Aj	oplicable - 🗌 yes, 🔲 ı	no (** C 11 50 - 0/	land or CC and many
1. Percent of Total Equipment Weight **	%	during up righting)	based on CG and movement
2. Amount of Equipment Weight (A4 x F1)	Lbs	<u> </u>	
3. Weight of Headache Ball	Lbs		
4. Weight of Block	Lbs		
5. Weight of Lifting Bar	Lbs		
6. Weight of Slings and Shackles	Lbs		
7. Weight of Jib Erected	Lbs		
8. Weight of Jib Headache Ball	Lbs		
9. Weight of Cable Load (Load Fall)	Lbs		
Weight of Cable Load (Load I all) Auxiliary Boom Head	Lbs		
11. Other	Lbs		
12. Total Weight of Load/Equipment Lifted by Tailing Crane (F2 through F11)	Lbs		
Source of Load Weight:			
(Name Plate, Drawings, Calculated, Scale Ticket)			
	Vaiabt and Calculation		
	Veight and Calculation		D .
Print Name	Signa	ture	Date
By:			
Verified By:			
	Section G		
	Tailing Crane Based on	1 Configuration	
 Make and Model of Crane: Counter Weight Size: 	Type	of Boom:	
Counter Weight Size. Lifting Arrangement	Туре	or boom.	
a. Max. Radius During Lift	Feet		
b. Length of Boom	Feet		
c. Angle of Boom at Pick	Degre	e	
d. Angle of Boom at Set	Degre	e	
Rated Capacity Under Most Severe Condit			
1. Over Rear	Lbs		
2. Over Front3. Over Side	Lbs Lbs		
f. Rated Capacity for Lift Radius, Crane Con			
and Orientation (over front, side, or rear)	iiguiution,		Lbs
4. Jib			
a. Is the Jib to be used Yes	No 🗌		
b. Length of Jib	Feet		
c. Jib Angle	Degree		
d. Rated Jib Capacity for Lift Radius, Crane Configuration, and Orientation (over front,	side, or rear)	Lbs	
5. Cable			
a. Number of Parts	#		
b. Size of Cable	Inches	S	
c. Maximum Capacity	Lbs		
	(See Page 4)		

Critical Lift Load and Capacity Calculations Page 4 of 4

Percent of Cr	Section H ranes Capacity Tailing Crane
Total Lifted Weight	unes capacity runing cruite
$\frac{1.}{Rated\ Capacity} *100$	%
1 2	Section I
	Slings for Tailing Crane
1. Sling Selection	
a. Type of Arrangement	(Spreader, Vertical Slings, etc.)
b. Number of Slings to Hook	Capacity Lbs
c. Sling Size	Inches
d. Sling Length	<u>Feet</u>
e. Sling Capacity (at angle used)	Lbs
f. Number of Slings to Load	#
g. Total Rigging Capacity (Ie x If)	Lbs
Comments:	
Sketch of rigging arrangements available Yes	No ☐ See page:

Pre –Lift Checklist

			Yes	No	
1.	Crane operator me	ets company qualification require	ments?		
2.	Lift Calculations a	nd rigging plan completed?			
3.	Are all required ap	provals/permits signed?			
4.	Crane inspections	up to date (Annual/Monthly/Daily)?		
5.	Weather condition	s and wind speed acceptable?			
6.	Has the stability of	f the ground been assured?			
7.	Matting and/or out	rigger pads inspected and approve	ed?		
8.	Electrical equipme	ent and power lines at required dis	tance?		
9.	Rigging inspected	for defects?			
10.	Engineering lifting	glugs fabricated and installed corr	ectly?		
11.	Connecting/discon	necting means been developed?			
12.	Have the safety pro	ecautions been reviewed?			
13.	Is survey equipme	nt required?			
14.	The total lifted we	ight is below 95% capacity?			
15.	Signal person(s) as	ssigned?			
16.	Safe Plan of Actio	n (SPA) completed?			
17.	Pre-lift meeting/A	ctivity Hazard Analysis held?			
18.	Hoist area and load	d path cleared of non-essential per	sonnel?		
19.	Crane set up per th	e lift plan (radius, configuration,	etc.)?		
20	Rigging equipmen	t and tag line(s) installed per plan	?		
	Personnel Completing Check List				
	Print	Signature	Title	Date	

Comments Matrix – Quality Control Plan (Transmittal No. 01451A-13) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc. Reviewer – ARCADIS-US. Inc.

Reviewer	Page	Section	Comment	Response	
Comment	/Para		Common	•	
No	'				
1	NA	General	Please include Table of Contents.	Table of Cor	itents has been included.
2	1	Project	This section indicates the proposed project	Resumes hav	e been added to Attachment A.
		Organization	organization and resumes of key personnel are found		
			in Attachment 1, which has not been included. Please		
			submit the missing attachment in order to meet the		
			requirements of Specification Section 01451A,		
			Paragraph 3.2.1.b; which requires the qualifications		
			(in resume format) of each person assigned a CQC		
			function.		
3	NA	General	The requirements of Specification Section 01451A,		s submitted under a separate cover. The letter
			Paragraph 3.2.1a are not met. Provide the required	is now attach	ed to the plan to fulfill this requirement.
			organizational chart.	The organiza	ition chart is included in Attachment A.
				The organiza	
			Additionally, Specification Section 01451A,		
			Paragraph 3.2.1c requires that a copy of the letter to		
			the Contractor's Quality Control Manager signed by		
			an authorized official of the firm be included in the		
			plan. The letter shall describe the responsibilities and		
			delegates sufficient authorities to adequately perform		
			the functions of the Quality Control Manager. Please		
4	NA	C1	attach letter as required.	¥*	CT-4' TILL 1
+	INA	General	Specification Section 01451A, Paragraph 3.2.1.e	Frequency of	Testing Table has been provided.
			requires control, verification, and acceptance testing		
			procedures be listed for each specific test as part of		
			this QC Plan. Please provide a list/table, which includes test name, specification paragraph requiring		
			test, feature of work to be tested, test frequency, and		
			person responsible for each test.		
	1		person responsible for each test.	<u> </u>	

Cornell-Dubilier Electronics Superfund Site ARCADIS-US, Inc.

Quality Control Plan Comments Matrix July 2012

Comments Matrix – Quality Control Plan (Transmittal No. 01451A-13) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc.

Reviewer Comment No	Page /Para	Section	Comment	Response
5	NA	General	Please provide a description of how independent audits of QC activities will be performed.	Section XII Audits -describes the auditing system.
6	NA	General	Please provide a list of definable features of work as required in Specification Section 01451A, Paragraph 3.2.1.i.	See Section XVI Definable Features of Work.

Contractors Quality Control Plan

Rev 1

Cornell Dubilier Superfund Site OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

July 2012

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XVI.		

I. INTRODUCTION

Sevenson's Contractor Quality Control Plan (QCP) will be implemented to ensure that remedial and construction procedures are performed in compliance with the plans and specifications under this contract. The quality control measures as presented herein will include construction procedures; staffing; types of material and equipment to be used; and methods of performing, documenting, and enforcing quality control operations of both the prime contractor and subcontractors (including inspection and testing).

Maintenance of the QCP will be the responsibility of Sevenson's Quality Control Manager (QCM). The QCM will be responsible for ensuring that all materials and work comply with the contract specifications. All inspection and testing firms will be at the disposal of the QCM to ensure that all aspects of work are compliant with the contract. The QCM will report any deviations from the QCP independently to Sevenson's Corporate Project Manager. Mr. William Zambrana is designated as Sevenson's QCM at the site.

II. PROJECT ORGANIZATION

Sevenson's managers and personnel assigned to this project possess a broad range of remedial experience and skills. All have been involved with the handling of contaminated wastes at Hazardous, Toxic, and Radioactive Waste (HTRW) sites and are familiar with requirements of day-to-day work under this contract.

Sevenson's proposed project organization for this project and the resumes of key personnel, along with their job titles, can be found in Attachment A.

The functional responsibilities of key technical personnel are summarized below.

HOME OFFICE PERSONNEL

Richard Elia - Executive Vice President

Mr. Elia will ultimately be responsible for the project's success. He will provide the required Sevenson resources to ensure that the Cornell Dubilier Soils Remediation project is successfully executed. He will be kept informed of the project's progress and maintain that the project is meeting its goals. Mr. Elia will resolve problems that cannot be resolved by the On-site Project Manager or Project Administrator. He will

periodically visit the site and become acquainted with field personnel and procedures.

Alfred LaGreca - Project Administrator (PA)/Corporate Project Manager (CPM)

Mr. LaGreca will oversee the project at the corporate level and report directly to the Vice President. He will communicate with the onsite Project Manager regarding all aspects of the project including, but not limited to, project problems, progress, payments, schedules, administrative duties, and QCM oversight.

Paul Hitcho, Ph.D., Certified Industrial Hygienist (CIH) - Corporate Director of Health and Safety

Regarding safety and occupational health, Sevenson will:

- Maintain overall responsibility of Safety and Health to the Cornell-Dubilier Superfund Site.
- Be responsible for assigning Site Safety and Health Officer (SSHO) responsibilities.
- Ensure that all activities are carried out in compliance with the approved site Safety and Health Plan; and document all activities that are not in compliance.

Sevenson's corporate safety program is managed in-house by an AIBH-certified Industrial Hygienist, Dr. Paul Hitcho, PhD, CIH. Dr. Hitcho is responsible for the preparation, implementation, and enforcement of the site-specific Safety, Health, and Emergency Response Plan (SHERP). Sevenson's SSHO will report site safety activities to Dr. Hitcho on a regular basis, including all safety and occupational health issues. All job safety records generated will be thoroughly reviewed by Dr. Hitcho, who will also perform quarterly job-site safety inspections. He will prepare an audit report of findings for each inspection, including identification of deficiencies requiring corrective action.

Dr. Hitcho will supervise the SSHO, review the respirator qualitative fit tests, and develop the air-monitoring program. He will make periodic trips to the site to conduct safety audits, observe the administration of this plan, and make any necessary modifications to the program.

Kenneth Paisley, CHMM - Regulatory Specialist

Mr. Paisley is responsible for regulatory compliance on all Sevenson projects. He is committed specifically to overseeing all field sampling and chemical data acquisition plans, and is the point of contact with off-site laboratories. Mr. Paisley will review laboratory reports with our selected lab to ensure compliance with project specifications and all required protocols. He will coordinate off-site waste removal, including transport, disposal, manifesting, waste profiles, regulatory compliance, and disposal requirements.

FIELD PERSONNEL

Kim W. Lickfield, On-site Project Manager

Mr. Lickfield, Sevenson's On-site Project Manager, will be the contact person with whom USACE will deal with on a daily basis under this contract. Mr. Lickfield will ensure that:

- Appropriate Sevenson and subcontractor resources are allocated to the project and balanced to ensure best value to the USACE.
- All cost tracking and reporting is carried out in a manner compliant with USACE Contract Management Procedures.
- All tasks are conducted in accordance with the site SHERP and project specifications.

Sevenson field personnel may rely on home office support throughout the course of the project. Mr. Lickfield reports directly to Sevenson's **PA/CPM**, Al LaGreca. When problems arise that cannot easily be rectified in the field, Mr. LaGreca and Mr. Elia will become and remain personally involved until each problem is resolved and appropriate corrective measures are implemented. Mr. Lickfield will normally communicate with Mr. LaGreca at least once daily on the progress of the project. Mr. LaGreca will be present on the jobsite as required, to ensure that the project is progressing as scheduled.

As Project Manager, Mr. Lickfield is responsible for implementation and support of Sevenson's QCP at the Cornell-Dubilier Superfund Site. He will oversee all aspects of work under this contract for remediation at the site, including:

- All procurements.
- Site processes (excavation, screening, building construction, LTTD unit operation, sampling and analysis, backfilling, site restoration).
- Sub-contractor coordination.
- Coordination with public utilities. (PSE&G, Verizon, NJA)
- Coordination with agencies (USEPA, NJDEP).

His responsibilities include:

- Contractor coordination.
- Acting as site liaison between Sevenson and USACE.
- Maintaining charge of all field operations.

Mr. Lickfield will serve as Sevenson's Contract Administrator on the Cornell Dubilier project. As Contract Administrator, Mr. Lickfield will prepare and document procurements, advance notifications, and consents. Mr. Lickfield will maintain project files for procurements involved in the preparation and distribution of RFP and IFB packages.

William Zambrana-Quality Control Manager (OCM)

As Quality Control Manager, Mr.Zambrana will report directly to the PA/CPM with matters concerning quality control. He will have both the authority and the duty to halt any operation appearing to be out of compliance with contract specifications.

The QCM is responsible for keeping and maintaining all records related to personnel, supplies, equipment use, and equipment calibration and sampling. His functions will be as defined within the contract specifications and as referenced in the Quality Control Documents.

QCM responsibilities include:

- Performing and documenting field inspections.
- Preparing daily Quality Control Reports.
- Scheduling, reviewing, certifying, and managing project submittals.

- Maintaining the Submittal Register.
- Providing coordination of required quality control testing, reviewing results, and submitting.
- Coordinating, documenting, and tracking preparatory, initial, and follow-up inspections.
- Tracking construction deficiencies and ensuring timely corrective action.
- Coordinating field-sampling activities (as required).
- Reviewing calibration of test equipment (as necessary).
- Preparing addenda to the QCP as necessary when additional phases of work are added.
- Maintenance of as-built drawings.
- Coordinating responses to vendors' requests for information and technical issues.
- Maintaining a daily log for government property
- Serving as main point of contact for USACE questions and discussions on quality and technical issues.
- Delegating duties to alternate QCMs and notifying USACE to whom what duties have been delegated.

The QCM or an alternate must be on-site when work is being performed.

TBD - Alternate Quality Control Manager/Project Engineer

As Alternate Quality Control Manager, The Alternate Quality Control Manager (AQCM) will have the same duties and responsibilities as the Quality Control Manager, William Zambrana. The AQCM will function as the QCM in the absence of Mr. Zambrana. The AQCM will also perform the duties of the Project Engineer for the project, preparing cost proposals, WVN's, maintaining a daily log for government property, procuring subcontractor quotations and assisting the Contract Administrator.

Eric Tschudi - Site Safety and Health Officer (SSHO)

As Site Safety and Health Officer, Mr. Tschudi will report to Sevenson's Certified Industrial Hygienist and be responsible for the implementation of the approved site

SHERP; including conducting required safety inspections, safety briefings, and reports of safety-related activities. He has received 40-hour HAZWOPER training per 29 CFR 1910.120(e), and possesses current Red Cross First Aid and CPR training.

Perry Novak-Superintendent

Mr. Novak will be responsible for supervising all field activities, including construction on the Cornell Dubilier project. His duties include supervision of Sevenson's craft labor (equipment operators, truck drivers, and laborers), technical staff (survey crew), and all subcontractors.

Raymond Gabriel- Accountant

Mr. Gabriel will serve as Sevenson's on-site accountant for the project. Mr. Gabriel will track all the cost associated with the project, track daily costs, prepare weekly project cost summary reports (PCSR), monthly vouchers, work variation notifications (WVN), track funding against budgets, spending against budgets and prepare close out reports.

III. QUALITY CONTROL

The QCP will be implemented in order to ensure compliance with the specifications for remedial action construction as detailed in the contract specifications.

Prior to the initiation of work, the QCM will meet with USACE to discuss Sevenson's quality control system. During this meeting, a mutual understanding of the system's details will be developed, including forms for recording (presented herein), control activities, testing, and administration of the system for both on-site and off-site work.

Quality control measures will extend to field sampling procedures; staffing; types of material and equipment to be used; and methods of performing, documenting, and enforcing quality control operations of both the prime contractor and subcontractors (including inspection and testing).

As previously stated, maintenance of the QCP will be the responsibility of the QCM. The QCM will be responsible for ensuring that all materials and work comply with the contract specifications. The QCM may have a Field Engineer at his disposal to assist him with the on-site inspections. Testing firms will be at the disposal of the QCM to ensure contract compliance in all aspects of work. All testing firms' qualifications will be submitted to the engineer for approval.

All reports from testing firms will be forwarded to the QCM for his review and approval. Testing firms hired to perform chemical analysis will be required to comply with the requirements listed in the Sampling and Analysis Plan and must be validated by ClientName prior to conducting work.

Property maintenance will be the responsibility of the property manager - Michael Misiaszek.,

Mr. Misiaszek will inspect all government property entering and leaving the site. He will
maintain the government property transfer log, which will be updated on a daily basis. All
property will be secured on-site any missing property will be reported within 24 hours in writing
to the USACE.

IV. CHEMICAL QUALITY CONTROL

Should environmental/chemical sampling be required, the QCM will be responsible for oversight of the Chemical Quality Control Program as part of the site QCP. Sevenson will use the approved Field Sampling Plan and Quality Assurance Plan components of the Sampling and Analysis Plan.

V. BASIS OF CONTRACTOR QUALITY CONTROL PLAN

The basis of the QCP is nationally recognized standards published by the American Society for Testing and Materials (ASTM), the New Jersey Department of Transportation (NJDOT) and the USACE's specifications. In addition, procedures utilized within the QCP reflect the experience gained by Sevenson in completing construction projects similar to the Cornell-Dubilier project.

VI IMPLEMENTATION

The QCM will be responsible for implementing the QCP by ensuring that quality materials and supplies are provided for the proposed project, and that good workmanship is provided in all aspects of this contract. Sevenson's QCM will report directly to the home office administration (PA/CPM) and will complete daily site inspections to ensure compliance with the quality control specifications. Daily reports will be completed listing all field testing and sampling activities. These reports will be submitted to the USACE's representative on a daily basis. The QCM will be responsible for ensuring that all materials and work comply with the contract plans and specifications and that all performance standards are met.

As additional features of work are added, addenda to the QCP will be submitted detailing updated lists of Definable Features of Work, updated lists of quality control testing, and other additional quality control information specific to the additional phases of work.

VII REPORTING

The QCM will record control activities in a daily quality control report maintained on site at all times. All site activities, site inspections, and field testing of materials will be recorded on a daily basis, along with any unacceptable site occurrences or deficiencies and their associated corrective actions. Each daily entry into the report will be signed by the QCM. Quality Control Reports will be submitted on a daily basis during all field construction activities. Sevenson will utilize the USACE's RMS system with forms updated as provided by the USACE. A copy of the daily quality control report is presented in the attachments.

COST REPORTING

Job costs will be reported to the USACE daily via the Daily Costs Report and Bi-weekly via the Project Cost Summary Report. Reported costs will include overhead, burden and G&A per the 2008 Forward Pricing Rates memo dated June 24, 2008.

Daily Reports will be compiled in order to ensure proper documentation and billing using the example procedures below:

Labor

- Project Management Will record charged job daily hours on a weekly time sheet form kept in Sevenson's office. Hours will be reviewed and verified by the P/M and reported on the daily report.
- 2.) <u>Trades</u> (union employees) Hours will be reported on time logs established for each trade on site. Job hours will be recorded by the designated union steward and Project Superintendent. Hours will be reviewed and verified by the Project Superintendent and reported on the daily report.
- 3.) <u>Billable Time Off</u> Project management (employees)have a combination of sick/personal days vacation days per year that are billable to the job in accordance with approved contract management plan. Billable time off must be approved by the P/M and will be included on the

daily report. A record of the billable time off will be kept on site and submitted to the USACE with the last Daily Report of each month and recorded on a daily report.

Materials & Other Direct Costs

- 4.) Materials Estimated costs for materials or services received will be recorded on the daily report upon receipt of a packing-list, signed-receipt-for-services-or-acknowledgement-of-receipt-by-the—Superintendent.
- 5.) Other Direct Costs –Estimated costs such as Utilities will be recorded on the daily report based on historic usage and periodically updated according to usage and updated as required. Subcontracts
- 6.) Lump-Sum Entire costs of subcontract will be recorded on the daily report on the first day subcontractor is on site or work is performed.
- 7.) Time & Material —Authorized costs will be calculated by dividing the total subcontract by the estimated days to complete the tasks and will be recorded on the daily report beginning with the first day subcontractor is on site or start of work.
- 8.) Unit Price Estimated costs will be calculated by multiplying unit cost times the number of units and will be recorded on the daily report as used.

Equipment

- 9.) Engaged/utilized Equipment hours will be reviewed and verified by the Superintendent and reported on the daily report
- 10.) Stand-By If equipment is not engaged/utilized there will be no costs recorded on the daily report

HOUSING, TRAVEL AND M&IE

- 11.) Lodging and Per-Diem will be recorded on the daily report utilizing the JTR rates for Middlesex County times 55%.
- 12.) Per-diem will be charged for each day the employee is working for the project, except for travel weeks.
 - 13.) Receipts are required for all billable travel.

VIII INSPECTIONS

To ensure that all construction and remedial activities comply with the project specifications, the QCM will complete, in conjunction with the subcontractors, three phases of site inspections for each feature of work. These inspections will include the following:

PHASE I - PREPARATORY INSPECTION

Preparatory inspections will be performed prior to beginning work on any definable feature of the project and will include:

- Reviews of contract requirements.
- Reviews of applicable Activity Hazard-Analyses, Health-& Safety-Plan,
 Safety & Health requirement Manual EM 385-1-1 and associated
 administrative and engineering controls to be employed to ensure safety to the subcontractor.
- A check to ensure that all materials and/or equipment have been tested, submitted, and approved.
- Assure that all testing and measuring instruments are entered into the Master Equipment Log.
- A check to ensure that provisions have been made to provide required control testing.
- Examination of the work area to ascertain that all preliminary work has been completed.
- A physical examination of materials, equipment, and sample work to ensure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand.

PHASE II - INITIAL INSPECTIONS

Initial phase inspections will be performed as soon as a representative portion of the particular feature of work has been accomplished. Initial inspections include, but are not limited to, Health & Safety compliances (especially critical safety elements), examination of the quality of workmanship; review of control testing for compliance with contract requirements; and identification of defective or damaged materials, omissions, and dimensional requirements.

The initial phase inspection is the time to discuss and agree on the required level of quality associated with a given work activity. Any discrepancies relative to work quality should be addressed at this time.

PHASE III - FOLLOW-UP INSPECTIONS

Follow-up inspections will be performed daily as work progresses to ensure continuing compliance with contract requirements, including Health & Safety compliances and control testing, until completion of the particular feature of work. Final follow-up inspections will be conducted and deficiencies corrected prior to beginning new work.

The QCM will notify the USACE at least 24 hours in advance of any inspections. Notification and meeting minutes of all inspections will be recorded in the Daily Quality Control Report. Examples of the inspection forms to be utilized are presented at the end of this document.

FINAL FOLLOW-UP INSPECTIONS

At the completion of all work, or any increment thereof established by a completion time stated in the specifications, the QCM will conduct a final follow-up inspection of the work. The USACE's representative will be given at least 24 hours notice of all inspections. The QCM will develop a "punch list" of items that do not conform to the approved plans and specifications. This list will include the estimated date by which the deficiencies will be corrected. The QCM or his staff will perform a second completion inspection to ascertain that all deficiencies have been corrected.

Following completion of all inspections at the end of the construction, a series of prefinal and final inspections will be conducted by the QCM. ClientName's representative will be advised of all pre-final and final inspections at least 5 days in advance.

FINAL COMPLETION INSPECTIONS

Pre-final and final inspections will take place after all individual final follow-up inspections are completed, and all punch list items corrected.

The QCM will conduct pre-final inspections to identify deficient areas of work, and develop a punch list of items requiring correction. Once all punch list items have been corrected, Sevenson and USACE will conduct a final inspection, noting any deficient areas of work. After correcting any deficiencies, USACE and Sevenson will conduct a final inspection, leading to acceptance of the work as complete.

The completion inspection(s) and any required deficiency corrections will be accomplished within the time stated for completion of the entire scope of work or any particular increment thereof if the project is divided into increments by separate completion dates and closeout report for health and safety

IX FIELD TESTING PROCEDURES

Sevenson will conduct field-testing to verify that control measures are adequate to provide a product that conforms to contract requirements.

Field testing shall be conducted under the auspices of the QCM and he or his designee shall:

- Arrange for, or conduct, field testing in accordance with applicable test parameters (ASTM, etc).
- Verify that facilities and testing equipment are available and comply with testing standards and ensure that testing facilities are validated.
- Check test equipment calibration data against certified standards.
- Verify that all tests are documented and submitted as part of quality control system reporting.
- Review all test documentation prior to submittal.
- Assure that all testing and measuring instruments are entered into the Master Equipment Log.

X. DEFICIENCY TRACKING SYSTEM

Throughout the course of the project, deficiencies will be recorded by use of a deficiency tracking system in which a master list of outstanding deficiencies will be maintained by the QCM.

The QCM will list any deficiencies noted during the course of project work and both Sevenson and the USACE representative will sign-off when each deficiency is corrected. During the quality control portion of the weekly progress meeting, a review will be held to ensure that the master list of outstanding deficiencies is kept up to date. During these meetings, discussions will be held on the inspection, addition, corrective actions, re-inspection, and ultimate removal of items from the deficiency list. Minutes will be recorded and copies given to the USACE. Both Sevenson and the USACE's representative will sign-off on the master list of outstanding deficiencies once appropriate corrective actions have been implemented. An example master

quality control deficiency list is included at the end of this document.

XI SUBMITTALS

A submittal register listing major submittals will be prepared by Sevenson and submitted to the USACE for approval. This register has been prepared in conjunction with the anticipated progress schedule. The QCM will follow standard procedures concerning submittals, including the use of the submittal register, transmittal form 4025, and cross-indexing the register and transmittals, etc. Each transmittal may contain more than one submittal specific to that specification section.

Transmittals shall be numbered sequentially in the following manner:

New Transmittals: Spec section - transmittal No.

Example: 01450-1

Revisions: Spec section - transmittal-revision

Example: 01450-1.1

SUBMITTALS REVIEW - NORMAL PROCESS - The QCM will be responsible for the review and approval of submittals prior to their submittal to the USACE. This includes reviews of materials and suppliers' catalog cuts, as well as subcontractor submittals. The QCM will review the submittal for completeness and compliance with the contract specifications. Variations to a submittal will be noted on the transmittal form 4025. The QCM will actively participate during procurement activities to ensure purchase orders and subcontracts comply with the contract.

It is anticipated that the USACE's representative and Sevenson's QCM will meet frequently in order to forecast and/or prevent any potential problems from arising. An on-site quality control meeting will be conducted on a weekly basis as part of the weekly progress meeting in order to review performance during the previous one-week period, and to prepare for the upcoming two-week period. It is anticipated that Sevenson's On-site Project Manager, QCM, Superintendent, SSHO, and USACE's representatives will attend this meeting.

XII AUDITS

An auditing system will be established to verify implementation and make determinations

Sevenson Environmental Services, Inc.© 13 July 2012

regarding the effectiveness of the QCP. The on-site project manager will be responsible for inspecting quality control records to ensure contract compliance. These inspections will occur, at a minimum, on a monthly basis or more frequently as deemed necessary. An inspection report will be compiled by the on-site project manager in the form of a checklist and will include a review of reports and procedures, quality of ongoing construction, personnel, laboratories (on-site and-off-site), deficiency-tracking, and-subcontractors. The audit-report-will-be-forwarded-to-QCM-for his review (information only). An example of the auditing form to be utilized is presented at the end of this section. All non-compliance conditions will be identified during the audit and will be re-audited to verify that the appropriate corrective action(s) has/have been performed.

In Addition, Internal audits will be planned, scheduled and conducted to verify compliance with the Quality program. Audits will be performed by SES Corporate officer who do not have direct responsibility for the area being audited. The inspection will be documented and any corrective actions will be implemented immediately.

XIII. DOCUMENTATION

All testing results will be recorded on the daily quality control report. Any concerns or deviations from the required material specifications and the actions taken to correct the problems will be noted on the report. Information recorded on the daily quality control report will include:

- Definable features of works that were addressed.
- Description of trades working on the project.
- Numbers of personnel.
- · Weather conditions.
- Types and numbers of tests performed.
- Results of testing.
- Nature of defects or cause for rejection.
- Proposed corrective action(s).
- · Corrective action taken and date.
- Delays encountered.
- Directions received from the QCM and actions taken.
- Disagreements and how they were resolved.
- Health and safety issues or deficiencies and how they were resolved.

XIV. REVISIONS TO WORK

Sevenson will be responsible for ensuring total compliance of fieldwork to the project specifications. Should modifications or revisions to the specifications become necessary, Sevenson will make the request, in writing, to the USACE. Approval from the USACE must be received prior to allowing the modifications or revisions to be made in the field. The QCM will be informed of and record-all-such-requests-in-his-daily-log-and-on-the-daily-quality-control-report. The QCM will also be responsible for the maintenance of as-built drawing information and site surveys.

XV. INDEPENDENT TECHNICAL REVIEW (ITR)

Independent technical review will verify the implementation of proper QC controls, compliance with contract specification and compliance with applicable Federal and State requirements, with recommendations concerning investigations and cleanup plans. Its objective is to ensure the implementation of cost-effective investigations and remedies while meeting the USACE requirements contracts specification as well as to protect human health and the environment.

The ITR will review specific phases of the projects to determine whether the investigative approach, proposed actions, proposed monitoring plans, and exit strategies are technically sound. SES will develop recommendations to be considered by the USACE decision makers in determining the appropriate course of action. SES recommendations are intended to improve decision-making and to support technically sound initiatives. In addition to making recommendations, subject matter experts provide follow-up technical assistance to address specific issues identified during the reviews.

Independent technical inspections will be conducted to ensure that adequate compliance of a proper contractor quality control system is in place to assure that all construction materials, workmanship, construction practices and documentation comply with contract requirements.

XVI. DEFINABLE FEATURES OF WORK

Listed below are the general categories and types of work that will be performed under this contract. These items, known as Definable Features of Work, have been grouped into the various categories in which work will be performed, and correlate to measurement and payment. Suitable

QUALITY CONTROL PLAN REV. 1

quality control methods and procedures will be utilized in order to ensure that all work is performed to the standards and quality required by the specifications.

CATEGORY/TYPE OF DEFINABLE FEATURE OF WORK

- Project Photographs (Per EPA Photo log Guidance)/VIDEOTAPING
- Mobilization
- Sampling
- Surveying
- · Soil Erosion and Sediment Control
- · Clearing and Grubbing
- Location of existing utilities;
- Installation of temporary excavation perimeter controls (fencing);
- · Collection and storage of personal property items;
- · Safety, Health, and Emergency Response;
- Storm Water Pollution Prevention Measures;
- Perimeter Air Monitoring;
- Chemical Quality Control;
- Temporary Construction Facilities;
- · Surveying;
- Concrete Sidewalks, Curbs, and Gutters;
- Restoration of Utilities;
- Seeding;
- · Sodding; and
- · Exterior Plantings.
- Excavation
- Backfill and Compaction
- Transportation and Disposal
- Bituminous Pavement
- Fencing
- Utility Maintenance

• Demobilization

XVI. WORK PLANS

The following work plans will be prepared by Sevenson, which will contribute to the overall quality objectives for the site:

- Perimeter Air Monitoring Plan
- PCB Control Plan
- Dust Control Plan
- Soil Erosion and Sediment Control Plan
- Excavation and Materials Handling Plan
- Haz Mat Security Plan
- Security Plan
- Sampling and Analysis Plan
- Site Safety and Health Plan
- Spill Prevention and Control Plan
- Lead Awareness Plan

Frequency of Testing Table

Specification	Work Feature	Test	Test Frequency	Responsible Party
Section/Par.				
02320/3.9.1	Gradation-Backfill	ASTM D422	1per 1000 CY	NOVA QA
				Consulting
				Services
02320/3.9.2a.	In-Place Density	ASTM D1556	1 per 500 CY each lift	NOVA
02320/3.9.2b.	In-Place Density	ASTM D1556	1 per 300 SF hand	NOVA
,	·	1	operated	
			machines	
02320/3.9.2c.	In-Place Density	ASTM D1556	1 per 25 LF @	NOVA
·	·		roads	
02320/3.9.2d	In-Place Density	ASTM D1556	1 per 10 LF @ RR	NOVA
02320/3.9.5	Optimum Moisture	ASTM D1557	1 per 5000 CY	NOVA
02742/3.8.2.1	Sieve Analysis	ASTM C136 &	1 per 500 tons	Asphalt Plant
	-	ASTM C117		
02742/3.8.2.1	Stability Flow	ASTM D1559	1 per 500 tons	Asphalt Plant
02742/3.8.2.1	Tensile Strength Ratio	ASTM	1 per 500 tons	Asphalt Plant
	·	D4867/D4867M		
02742/3.8.2.2a.	Density	NJDOT 903.05	1 per 500 SY	NOVA
02742/3.8.2.3	Core Samples	NJDOT 404.18	5 per lot	NOVA
02770/3.9.2.1	Concrete Strength	ASTM C172	1 per day or every	NOVA
			250 CY	
02770/3.9.2.2	Air Content	ASTM C173/ASTM	2 per batch	NOVA
		C231		
02770/3.9.2.3	Slump Test		1 per 250 CY	NOVA



June 7, 2012

Mr. Patrick Nejand, COR US Army Corps of Engineers 333 Hamilton Blvd. So. Plainfield, NJ 07080

Regarding: QC Personnel, Cornell Dubilier Electronics Superfund Site

Contract W912DQ-10-D-3006, TO 0002

OU 1 Property Remediation

Gentlemen:

Please be advised that Mr. William Zambrana shall act as the QC Manager for Sevenson Environmental Services, Inc. at the Cornell Dubilier Electronics Superfund Site.

Mr. Zambrana will be responsible for ensuring that materials and work comply with the contract specifications. His responsibilities include, but are not limited to the following:

- · Review, approve, and submit materials for approval;
- Perform inspections and tests;
- Coordinate the work of the Licensed Land Surveyor;
- Compile reports, including test results, for submission;
- Insure records and record keeping complies with the contract specifications;
- Enforce the contract specifications;
- · Stop work if workmanship is deemed in violation of the specifications; and,
- Direct the superintendent in matters of quality control.

Additionally, Mr. Zambrana has the authority to sign progress payments, modifications and WVN's to the contract on Sevenson's behalf.

Sincerely,

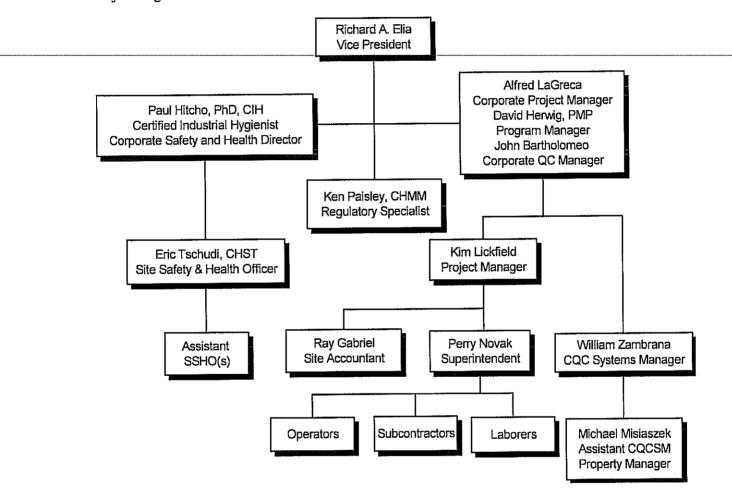
SEVENSON ENVIRONMENTAL SERVICES, INC.

Alfred R. LaGreca Vice President /

ATTACHMENT A

Resumes

Project Organization



Education:

- PhD, Biology, University of Notre Dame, 1970
- BA, Biology, St. Vincent College, 1966

Certifications:

- Quality Control Management of Contractor's Training, March 2000
- Board-Certified Industrial Hygienist, American Board of Industrial Hygiene
- National Science Foundation, Predoctoral Trainee, University of Notre Dame
 National Institutes of Health Postdoctoral Fellow, University of Massachusetts
- Certificate of Appreciation, US Department of Labor

Role and Responsibility:

- Responsible for development, implementation, reviews, and evaluation of the project-specific worker health and safety plans.
- Responsible for overseeing the medical monitoring of all field employees.
- Performs periodic audits and safety inspections at the sites.
- Supervises a staff of 42 Site Health and Safety Officers.
- Oversees the health and safety aspects of all Sevenson's projects.

Paul J. Hitcho, PhD

Vice President, Director of Health and Safety

Dr. Hitcho brings a rich professional background to Sevenson Environmental Services, Inc. He has conducted extensive research as a postdoctoral Fellow at the University of Massachusetts and taught at the university level. He was a field industrial hygienist for the Occupational Safety and Health Administration for 3 years, and later served as supervisor of industrial hygiene for the Pittsburgh Area Office. While serving as the head of the Industrial Hygiene Department for the United Steelworkers of America, Dr. Hitcho acted as liaison between the union and the coal carbonization (coking) industry and related chemical industries. recognized as a world authority in this field by the International Agency for Research on Cancer (IARC). The IARC monographs developed while he was an active participant are cited by OSHA today in that agency's hazardous communications standard 29 CFR 1910.120. Dr. Hitcho also interfaced with pesticide and herbicide manufacturers to conduct occupational health studies and to develop hazard analyses for some of the processes in this industry. Since 1986, Dr. Hitcho has served as the Director of Occupational Health and Safety for Sevenson.

Past Project Experience

- Teaching Assistant: University of Notre Dame 1966-1968
- National Science Foundation Trainee: University of Notre Dame 1968 – 1970
- Post Doctoral Research Fellow: University of Notre Dame 1970 – 1971
- National Institute of Health Post Doctoral Fellow: University of Massachusetts, Amherst, MA 1971 – 1974
- Field and Supervisory Industrial Hygienist, OSHA, Pittsburgh Sun Office 1974 – 1979
- Technician and Assistant Department Head Health and Safety: United Steelworkers of America 1979 – 1986
- Director of Occupational Health and Safety and Vice President: Sevenson Environmental Services, Inc., Niagara Falls, NY: 1986 to Present



Education:

 BS, Accounting Thomas Edison State College, 2001

Certifications:

- Zenger Miller Training Systems Front Line Leadership
- · First Aid, CPR

Role and Responsibility:

- He has over 20 years experience in financial cost accounting, inventory control and financial report preparation.
- Responsible for the day to day operation of the cost accounting system.
- Manages/prepares all time sheets; invoices, materials purchases for submission to the U.S. Army Corps of Engineers for cost reimbursement.
- Monitors/manages project budget and prepares cost reimbursable invoices for payment as well as in-house weekly and monthly financial reports.

Raymond Gabriel

Cost Control Accountant

Past Project Experience

Metaltec/Aerosytems Superfund Site, Franklin, NJ: Cost Accountant for the construction, startup, and operations and maintenance of a permanent Groundwater Treatment Plant. The GWTP is sized at 150 GPM. Additional work tasks include: construction of a permanent treatment building; installation of an extraction system; treated water discharge system; and in-situ chemical oxidation system.

Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Cost Accountant for the for the excavation, characterization, transportation and disposal of 30,000 cy of creosote - contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration.

Previous Experience:

Celotex Corporation, Dayton, NJ: (20 Years) District Center Manager. Controlled a \$2 million operating inventory for a production facility with annual sales of \$50 million. Maintained accurate perpetual finished goods inventory on PC and network based systems. Interpreted. compiled, and consolidated accounting data and furnished financial, cost, and inventory information to senior management. Created and implemented procedures that achieved 99% accuracy in shipping and Identified logistical problems within the customer invoicing. manufacturing and warehouse facilities and initiated corrective action that resulted in reduced operating costs. Developed and maintained standard cost files for raw materials, brokerage items, and finished goods. Analyzed raw material inventories on a periodic basis to assess usage. Generated tactical inventory plans and operating budgets based on projected sales forecasts. Negotiated freight rates with truck and rail carriers to obtain lowest possible delivered costs. Procured and scheduled raw materials and brokerage inventory as required to meet production schedule. Increased productivity of the shipping department by 20% through reorganizing the warehouse and initiating new procedures.

Education:

 BS, Civil Engineering SUNY at Buffalo, 1973

Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER Refresher
- Red Cross CPR and First Aid
- USACE Construction Quality Management for Contractors Training

Role and Responsibility:

- Responsible for delivery of completed project in compliance with plans and specifications.
- Communicates daily with the project team to review progress.
- Makes available personnel and equipment resources necessary to execute scope of work.
- Facilitates revision to work among owner, engineer and Sevenson.

Experience and Expertise:

- Remediation skills developed out of heavy, highway and civil construction project experience.
- Understands CERCLA, RCRA, TSCA and additional regulatory requirements.
- Firm Fixed Price, Cost Reimbursable, Fixed Fee, Guaranteed Maximum Price Contract Experience
- Union and Open Shop Labor
- Dredging, Dewatering and Filtrate Treatment
- Excavation and Earthwork
- Steel Sheeting Systems
- Recovery and Treatment Systems
- Solidification/Stabilization
- Constructability Reviews

Alfred R. LaGreca

Vice President / Corporate Project Manager

Past Project Experience

Mr. LaGreca has more than 30 years experience in heavy civil and general building construction. His experience includes the direct development and oversight of more than \$400 million in remediation tasks, including \$200 million cost-reimbursable contracts for commercial and federal clients. He has more than 24 years experience managing the cleanup and restoration of NPL sites, including 15 years managing USACE contracts. Mr. LaGreca is responsible for the coordination of all field activities including resource allocation, cost estimates, schedules, and engineering and construction management. He also negotiates and interfaces with clients and regulators.

Mr. LaGreca was instrumental in managing the evolution and development of Sevenson's MIS, ensuring the ability of the systems to gather appropriate data for daily cost review, Earned Valued Analysis, and other variance analyses. He is familiar with the development of estimates in MCACES and Sevenson's proprietary spreadsheet methods. He has overseen and approved the estimating efforts on all of Sevenson's Federal Contracts with the USACE, USAF, and the DOE. He has more than 30 years experience on private cost reimbursable contracts (CR) and five years CR contracts experience with USACE. His project experience includes:

USACE Baltimore District, MARC; Spring Valley, Washington DC: Responsible for the successful execution and management of tasks under this response action contract. Ensures that all operations conducted under this contract are executed in accordance with all environmental statutes as appropriate. Oversees the development of work plans, cost estimates, and schedules in compliance with USACE requirements for all projects under the Baltimore MARC.

Specific task order included:

Spring Valley TCRA Arsenic Contaminated Properties, Spring Valley, Washington DC: Evaluated vendor and subcontractor bids for labor and materials to meet the objectives. Oversaw the complete removal of arsenic contaminated soil on 25 residential properties under USACE Time Critical Removal Action regulations; a total of 4750 cy of contaminated soil was removed. Directed complete restorations of the disturbed sites, including backfill and topsoil placement, sod placement and care, replacement of driveways and sidewalks, and installation of other displaced landscape features. Implemented Construction Support Plans in support of two OE/CWM investigations that had potential of OE/CWM discovery during the construction activities. Participated in extensive community relations activities in support of the USACE, coordinating complex schedules between the USACE, residential homeowners, and subcontractors, including interfacing and negotiations



with residents.

W.R. Grace Remediation Project, Chattanooga, TN: Worked with project team to execute this design/build GMP and the decontamination, partial demolition, and rehabilitation of building sections contaminated with low-level radioactivity. Provided technical review of remediation design and project submittals. Work performed has included a Phase I study investigating the impact of low-level radioactive waste, including decontamination and demolition.

Manager, US Army Corps of Engineers, Kansas City District, Region II PRACs: Responsible for the successful execution of task orders associated with four consecutive PRACs with the USACE, Kansas City District. Directs the project manager and teams to fully execute—all—work—activities—at—various—sites—throughout—Region—II. Routinely visits sites to monitor quality, safety and performance.

Specific task orders included:

Vineland Chemical Company Superfund Site, Vineland, NJ: Worked in conjunction with on-site project management team to ensure all contract requirements were met. Reviewed the design and output results of soil washing treatment plant. Participated in stakeholder meetings and TO negotiations. Contributed to, and reviewed bids and cost estimates for materials and equipment for new soil washing treatment plant. Directed design and construction activities to remediate 200,000 cy of soil by implementing innovative soil washing technology.

Federal Creosote Superfund Site, Manville, NJ: Coordinates project team to successfully remediate VOC's and eliminate odor problems that exist at the former creosote manufacturing facility. Instrumental in the development of estimates, schedules, resource selection and client relations. Phase one of this two-phase task order was completed three months ahead of schedule and \$3 million under budget. Oversaw cost development for this cost reimbursable remediation project. Reviewed development of estimates, schedules, and resource selection and identification. Worked with project team to develop major milestones and project schedule. Provided staffing recommendations to support field activities and subcontractor personnel requirements. All four task orders were under budget and ahead of schedule.

Manager, USACE Kansas City, Region II LTRA, Long Term O&M Contract: Actively participated in TO development and day-to-day performance, including oversight of local, state, and federal environmental regulatory requirements. Managed six cost-reimbursable and firm fixed price contracts for O&M of three groundwater treatment plants at Superfund sites. The design capacity of the largest plant is 1,200 gpm. Over 20 Sevenson employees were assigned through this contract and reported to him.

Projects included:

Higgins Farm Superfund Site, Franklin Township, NJ: Ensures accurate O&M of the GMS in a safe and environmentally friendly manner. Reviews reports to confirm the treatment of contaminated influent is restoring groundwater quality to meet applicable Federal and state safe drinking water standards and effluent discharge requirements as set by SPDES authorization to discharge. Oversees the monitoring of wetlands and flood plain areas adjacent to the Higgins Farm site for adverse effects related to GMS operation.

USACE Buffalo PRAC, Fort Benjamin Harrison; Lake Ontario Ordnance Works; Niagara Falls Storage Site. Oversees the development of cost estimation and schedules working with the chief estimator—and—project—management.—Involved—with—planning_labor,—equipment, and materials in conjunction with the project management team. Key in daily operations and managing cost variances, scheduling, tasks, and personnel issues. Participates in progress meetings addressing tasks and client's issues.

Projects include:

Niagara Falls Storage Site, Niagara Falls, NY, September 2000 to September 2003, \$2 million. Sevenson removed all ACM and lead-based paint material; demolished the building (excluding the slab and spread footer); packaged, loaded, transported, and disposed of all non-radioactive contaminated ACM, lead, and building demolition debris to a licensed disposal facility; and performed pre and post construction radiological surveys of all work areas, including 15 meters outside the actual work areas to ensure that work activities did not radiologically contaminate the work areas. All radioactive residual material was identified, segregated, packaged, and transported to the on-site designated storage area.

Education:

AAS, Civil Technology
 Erie Community College, 1975

Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER
 Refresher

Role and Responsibility:

- Responsible for delivery of completed project in compliance with plans and specifications.
- Attends all scheduled progress meetings.
- Meets daily with the project team to review planned activities.
- Develops and maintains all project deliverables, submittals, schedule and reports.
- Develops and manages cost control and accounting, procurement and expediting material delivery, inspection, and quality control functions.

Experience and Expertise:

- Remediation skills developed out of heavy, highway and civil construction project experience.
- Understands CERCLA, RCRA, TSCA and additional regulatory requirements.
- Firm Fixed Price, Cost Reimbursable, Fixed Fee, Guaranteed Maximum Price Contract Experience
- Union and Open Shop Labor
- Dredging, Dewatering and Filtrate Treatment
- Excavation and Earthwork
- Steel Sheeting Systems
- Recovery and Treatment Systems
- · Solidification/Stabilization
- · Constructability Reviews

Kim Lickfield

Project Manager

Past Project Experience

Cornell Dubilier Superfund Site – OU-2, Phase II, South Plainfield, NJ: Project Manager. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations greater—than—500—ppm—and additional contaminated soils that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration.

Cornell Dubilier Superfund Site – OU-2, Phase I, South Plainfield, NJ: Project Manager for the fixed-price contract for the demolition of the current industrial park. Work tasks included the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.

Sharkey Landfill, Morris County, NJ: Project Manager for the construction of two (2) 25 acre multi-layer landfill cap systems. Work includes extensive earthwork; installation of geosynthetic and HDPE liners; placement of select fill and topsoil; installation of rip rap swales.

US Radium Superfund Site, Essex County, NJ: Project Manager for the excavation, transport, and disposal of low-level radium-contaminated soils and debris from a residential area. Also for the demolition, transportation and disposal of debris and restoration of homes and landscape.

Clevite Corporation Site Remediation, Cleveland, OH: Project Manager for site characterization of former facility used to manufacturer nuclear fuels. Building remediation for decommissioning under NRC Guidelines for unrestricted use.

Decontamination and Demolition Services, 95 Ames Street Site, Rochester, NY: Project Manager for the decontamination and demolition of a 10 acre industrial facility. Demolition debris and wastes generated on the project were characterized, transported, and disposed of at permitted facilities.





Eastman Kodak Co., Hawkeye Gorge Site, Rochester, NY: Project Manager for gorge rock stabilization project. Rock anchor and shotcrete installation.

Eastman Kodak Co., Hawkeye Gorge Site, Rochester, NY: Project Manager for the excavation, transport, and disposal of low-level thorium-contaminated soils and debris from a recreational area.

Montclair Radium Superfund Site, Montclair, NJ: Project Manager for the excavation, transport, and disposal of low-level radium-contaminated soils and debris from a residential area. Also for the demolition, transportation and disposal of houses and restoration of homes and landscape.

Pine and Tuscarora Remediation, Niagara Falls, NY: Project Manager for the construction of a new creek channel, installation of an HDPE liner and clay cap, and construction of a slurry wall.

Black and Bergholtz Creek Remediation and Landfill Construction, Love Canal (NYSDEC), Niagara Falls, NY: Project Manager for extensive creek remediation; construction of a secure landfill and drum storage building; transfer of 2,000 drums into the storage facility; and closure of the landfill.

Niagara Recycling, Niagara Falls, NY: QC Manager for the installation of a leachate collection system and runoff diversion channel, and construction of a sanitary landfill cap.

D'Imperio Property Superfund Site, Hamilton, NJ: Project Manager for the excavation, characterization, transport, and offsite disposal of bulk and drummed wastes.

Lake Ontario Ordnance Works (USDOE), Lewiston, NY: QC Manager for the excavation, stockpiling, and moisture-conditioning of low-level radioactive soil; construction of retention ponds and a residual dewatering system; and installation of an interim clay cap over stockpiled materials.

Krysowaty Farm Superfund Site, Hillsborough, NJ: Project Manager for the excavation, characterization, transport, and disposal of contaminated soils and buried drums.

Wyoming County Correctional Facility, Attica, NY: QC Manager for the construction of a 500-bed medium-security correctional facility.

Education:

 A.S., Radiation Health Physics, Central Florida Community College, Ocala, FL

Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER
 Refresher

Role and Responsibility:

- Support and review through recording, processing, and tracking status of submittals.
- Maintain communications with engineering oversight to ensure proper execution of procedures, specifications, and standards.
- Assist project management in duties relating to project correspondence, specifications and drawing interpretations and work history.
- Review material quantities, procedural submittals, and documentation.
- Create, update, and maintain computer log of various construction management documents.
- Attend construction progress meetings.
- Formulate status reports and agenda, supply necessary logs and documentation, record and prepare minutes for distribution.
- Support project management through preparation of maintaining construction schedules.
- Procurement of equipment and materials.
- Coordination of subcontractors.
- Daily Safety Logs and QA/QC reports.

William Zambrana

Quality Control Manager

Past Project Experience

Cornell Dubilier Superfund Site, South Plainfield, NJ: QA/AC Manager for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.

Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: QA/QC Manager for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging, and 590 lf of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration.

U.S. Radium Superfund Project, Orange, NJ: SSHO. Soil excavation with an extensive air monitoring and site control program. Level C Protection worn.

Montclair/West Orange/Glen Ridge Radium Superfund Site, Montclair, NJ: SSHO. Soil excavation with extensive air monitoring and site control program. Level C Protection worn.

Austin Avenue Superfund Site, Lansdowne, PA: SSHO. Soil excavation, demolition and new construction. Level C Protection worn.

Clevite, Cleveland, OH: SSHO. Building decontamination and rehabilitation. Level C Protection worn.

Whitmoyer Laboratories Superfund Site, Myerstown, PA: SSHO. Hazardous material excavation and transportation. Level B Protection worn.

Cherry Island, DE: SSHO. Hazardous material pipe/vessel decontamination. Level C Protection worn.





Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER Refresher
- Excavation and Trenching Competent Person Course

Role and Responsibility:

- Responsible to implement the construction schedule working in conjunction with the project manager.
- Supervise and oversee all field construction activity.
- Determines equipment needs.
- Delivery of completed project in compliance with plans and specifications.

Experience and Expertise:

- Remediation skills developed over 12 years of remedial construction project experience.
- Understands CERCLA, RCRA, TSCA and additional regulatory requirements.
- Firm Fixed Price, Cost Reimbursable, Fixed Fee, Guaranteed Maximum Price Contract Experience
- Union and Open Shop Labor
- Dredging, Dewatering and Filtrate Treatment
- Excavation and Earthwork
- Steel Sheeting Systems
- Recovery and Treatment Systems
- Solidification/Stabilization
- Constructability Reviews

Perry D. Novak

Project Superintendent

Past Project Experience

Cornell-Dubilier Superfund Site –OU2, South Plainfield, NJ: Superintendent. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations greater than 500 ppm and additional contaminated soils that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration.

Metaltec/Aerosytems Superfund Site, Franklin, NJ: Superintendent for the construction, startup, and operations and maintenance of a permanent Groundwater Treatment Plant. The GWTP is sized at 150 GPM. Additional work tasks include: construction of a permanent treatment building; installation of an extraction system; treated water discharge system; and in-situ chemical oxidation system.

Cornell-Dubilier Superfund Site, South Plainfield, NJ: Superintendent for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.

Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: Superintendent for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging, and 590 If of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration.

Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Superintendent for the excavation, characterization, transportation and disposal of 30,000 cy of creosote - contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration.





Federal Creosote Superfund Site, WAD-2, Claremont, NJ: Superintendent for this task order issued under PRAC on a cost plus fixed fee contract to perform test pit excavation, characterization of soil samples, and odor control studies.

U.S. Radium Co. Superfund Site (4 Contracts), Orange, NJ: Assistant Superintendent for this CERCLA site requiring the partial demolition, rehabilitation, and restoration (basements, garages, porches, sidewalks, and plantings) at 130 residential properties contaminated from radium. The original processing facility and all appurtances will also be demolished. Material volume for transportation and offsite disposal is estimated at 65,000 cyds.

Montclair Radium Site (7 Contracts), Montclair, NJ: Assistant Superintendent-for-the-remediation-of-a-residential-area-contaminated by a former radium-processing facility. Project involved demolition of residences, characterization of materials for offsite disposal, excavation and transport of radium-contaminated soils to a secure disposal facility, and site restoration.

Certifications:

- USEPA Region IV Oversight Training
- NRC RAD Worker | and || Certification
- OSHA 40 Hour Training/OSHA 8 Hour Refresher
- CHST Construction Health and Safety Technician Certificate Number C2764
- · First Aid Training/CPR

Role and Responsibility:

- Responsible for implementation of the project-specific worker health and safety plans.
- Responsible for overseeing the medical monitoring of projectspecific field employees.
- Performs audits and safety inspections at the sites.
- Oversees the health and safety aspects on assigned project.
- Conducts informational meetings.
- Repairs and maintains field instruments.
- Manages air monitoring and sampling programs.
- · Evaluates analytical data.

Experience and Expertise:

 Implemented and enforced sitespecific plans on a variety of remedial action projects involving: excavation and earthwork: innovative and traditional steel sheeting systems: sediment remediation: temporary and mobile water treatment systems; sludge solidification and soils stabilization; chemical treatment/heavy metals fixation; slurry wall and trench construction; collection, recovery and treatment systems construction; facilities decontamination and demolition: and low level radiation remediation.

Eric Tschudi

Onsite Health and Safety Officer/Radiological Technician

Past Project Experience

Cornell-Dubilier Superfund Site –OU2, South Plainfield, NJ: Health and Safety Officer. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations greater than 500 ppm and additional contaminated soils that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration. Level C protection.

Cornell-Dubilier Superfund Site, South Plainfield, NJ: Health and Safety Officer for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site. Level C protection.

Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: Health and Safety Officer for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging, and 590 lf of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration. Level C protection.

Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Health and Safety Officer for the excavation, characterization, transportation and disposal of 30,000 cy of creosote - contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration. Level C protection.



Federal Creosote Superfund Site, WAD-2, Claremont, NJ: Health and Safety Officer for this task order issued under PRAC on a cost plus fixed fee contract to perform test pit excavation, characterization of soil samples, and odor control studies. Level C protection.

U.S. Radium Co. Superfund Site (4 Contracts), Orange, NJ: Health and Safety Officer for this CERCLA site requiring the partial demolition, rehabilitation, and restoration (basements, garages, porches, sidewalks, and plantings) at 130 residential properties contaminated from radium. The original processing facility and all appurtances will also be demolished. Material volume for transportation and offsite disposal is estimated at 65,000 cyds. Level C protection.

-Montclair Radium Site (7 Contracts), Montclair, NJ: Health and Safety Officer for the remediation of a residential area contaminated by a former radium-processing facility. Project involved demolition of residences, characterization of materials for offsite disposal, excavation and transport of radium-contaminated soils to a secure disposal facility, and site restoration. Level C protection.

Education:

 BS, Biology, Bloomsburg University, 1988

Certifications:

- Certified Hazardous Materials Manager (CHMM), Master Level Certificate
- USACE Wetland Delineation and Management Training (Certificate #2279)
- 40-Hour and 8-Hour OSHA Hazardous Waste Site Training per 29 CFR 1910.120
- Radiation Worker I and II Certification
- Cargo Security
 Awareness/Planning Training per 49 CFR 172.704(a)
- HM-181/POPS Training / DOT Training Certification
- US Army Corps of Engineers Construction Quality
 Management Certification
- Member, Air and Waste Management Association
- Past President, Academy of Certified Hazardous
- Materials, Managers, Western New York Chapter

Role and Responsibility:

- Responsible for regulatory compliance matters on all Sevenson projects.
- Provides support services to project management on technical issues pertinent to proper waste handling techniques and develops and manages waste characterization plans consisting of sampling protocol, analytical requirements, and final waste disposition.
- Sources and evaluates all analytical, transportation, and disposal subcontractors.

Kenneth O. Paisley, CHMM

Director of Technical Affairs/Regulatory Compliance Specialist

Past Project Experience

Welsbach/GGM Superfund Site (USEPA Region II), Gloucester City, NJ: Technical Affairs Manager for the excavation, removal transport and disposal of thorium and radium tailings — contaminated soils and debris from former industrial properties and 54 residential areas. Excavated soils and debris were transferred to a central Rail Tranship Facility (RTF) for loading into rail gondola cars. Materials managed at the site included low-level radioactive (LLRW), pre-1978 11(e)2, hazardous (RCRA) and mixed wastes (LLMW). Arranged for and coordinated the shipment of all waste to an offsite permitted non-RCRA hazardous, and radioactive waste landfills.

Rattlesnake Creek FUSRAP Site (USACE – Buffalo District), North Tonawanda, NY: Technical Affairs Manager for the excavation, removal transport and disposal of 53,000 tons of Pre-1978 11(e)2 contaminated soils, debris and buried containers of uranium contaminated ores resulting from historic operations of the Manhattan Engineer District. All wastes were consolidated and loaded into rail gondola cars at an onsite rail loading area for transport and disposal. Duties include oversight of the sampling, analysis, and classification of all site wastes. Arranged for and coordinated the shipment of all waste to an offsite permitted landfill.

Montclair/West Orange and Glen Ridge Radium Sites (USEPA/USACE), NJ: Technical Affairs Manager for excavation, removal and transport of wastes from numerous residential and several industrial properties throughout the site areas contaminated with the byproducts of a radium processing facility. Waste were loaded into intermodal boxes and transported to a rail loading facility for shipment for offsite disposal.

Cumberland Bay Site (NYS Superfund), Plattsburgh, NY: Technical Affairs Manager for the dredging, dewatering, treatment, and disposal of approximately 90,000 cubic yards of PCB sludges from a 34 acre area of Lake Champlain. In addition, 20,000 cubic yards of shoreline were excavated for disposal. Duties included the placement, staffing and coordination of an on-site laboratory to perform immunoassay testing to determine PCB concentrations in waste prior to off-site disposal. Planned and coordinated all other site analytical testing including the placement of real-time monitors to determine Total Suspended Solids (TSS) content outside of sheet-piled areas and at water discharges. Arranged for and coordinated the shipment of all site waste to either non-hazardous or TSCA landfills, as applicable.



Purolator Products, Inc. Elmira, NY: Technical Affairs Manager for the excavation and disposal of 12,000 tons of RCRA hazardous soils and solids and 21,000 tons of non-RCRA hazardous soils from a currently operating automotive supply manufacturer. Prepared and supervised implementation of an insitu sampling program to determine waste classification. Coordinated transportation and disposal via landfilling, chemical oxidation, and incineration. Supervised the operation and permit compliance of a 50,000 gallon batch water treatment plant.

Rockwell International, Russelville, KY: Technical Affairs Manager for the excavation and disposal of 80,000 tons of non-RCRA hazardous sediments and 21,000 tons of PCB sediments from the dredging and removal of approximately 1.5 miles of streambank. Coordinated with the owner's on-site Engineer to conduct a pre-excavation and post-excavation sampling to determine the depth and lateral extent of dredging/excavation activities. Supervised the operation and permit compliance of a continuous discharge water treatment plant at the site.

Carter Industrial Site, Detroit, MI: Technical Affairs Manager for the excavation and off-site disposal of 35,000 tons of PCB contaminated soils and debris, 20,000 tons of non RCRA hazardous solids and approximately 200 drums and cylinders. Duties included development and implementation of a pre-excavation and post-excavation soil sampling plan as well as a drum characterization and sampling plan. Also coordinated the on-site treatment, delisting, and verification sampling of 5,000 tons of lead contaminated soil. Arranged for and coordinated the off-site disposal (landfill) of all site wastes at the appropriately permitted landfills.

Taylor Instruments Site, Rochester, NY: Technical Affairs Manager for the excavation and off-site disposal of 43,000 tons of non hazardous, mercury and solvent contaminated soils and debris from the demolition and removal of a former mercury instrument manufacturing facility. Coordinated the sampling and off-site disposal of all site wastes to the appropriate (landfill, stabilization, chemical, treatment and mercury recycling) facility. Large quantities of free mercury and soils with mercury levels exceeding the High Mercury Land Ban Subcategory necessitated special handling and disposal requirements.

Commercial Oil Site, Oregon, OH: Technical Affairs Manager for the characterization, consolidation and off-site disposal of the contents of 30 bulk oil storage at this former waste oil recovery facility. Coordinated the sampling and analysis of the various phases and contents of all tanks at the site. Waste materials were consolidated based on their characteristics and compatibilities for off-site disposal (fuels blending/recovery, chemical treatment, and incineration).



Barker Chemical Site (NYS Superfund), Sodus, NY: Technical Affairs Manager for the excavation and offsite disposal of pesticide-contaminated soils, sediments, and debris. Duties included developing and coordinating pre-excavation (to establish excavation limits) and post-excavation (to verify completion) sampling plans. Arranged for and coordinated the transportation and disposal (through incineration, chemical oxidation treatment, and macroencapsulation) of 4,000 tons of contaminated soil and building demolition debris.

Summit National Superfund Site (USEPA Region V), Deerfield, OH: Technical Affairs Manager for the sampling, characterization, analysis, and disposal of approximately 500 drums of material and the contents of five underground storage tanks.

Metaltec/Aerosystems Site (USEPA Region II), Franklin, NJ: Technical Affairs Manager for the onsite thermal treatment of approximately 11,000 tons of hazardous soils. Coordinated the post-treatment sampling of ash to verify that site-specific treatment criteria were met and that waste was correctly classified. Arranged for and coordinated the transportation and offsite disposal of all treated soils.

Marathon Battery Superfund Site (PRP Trust), Cold Spring, NY: Technical Affairs Manager for the excavation/dredging of 150,000 cy of metals-contaminated soil and sediments from a former plant site, tidal marsh, and sections of the Hudson River, and onsite chemical fixation prior to rail transport for offsite disposal. Duties included onsite supervision of pre- and post-excavation and treatment sampling programs, QC of offsite analytical laboratories, interface with offsite disposal facilities, and liaison with the client regarding waste classification issues.

Madison Wire Site (NYS Superfund), West Seneca, NY: Technical Affairs Manager for the excavation and offsite disposal of 17,000 tons of metals-contaminated soils. Duties included supervision of an extensive in-situ sampling program to characterize the waste based upon "as excavated" chemical characteristics. Also conducted post-excavation sampling program with "expedited turnaround" (48-hour) of analytical data to facilitate ongoing excavation operations.

Blosenski Landfill (PRP Trust), Chester County, PA: Technical Affairs Manager for the excavation and offsite disposal of 1,200 tons of contaminated soils and 1,000 buried drums. Responsible for all onsite sampling and analysis programs, including development of a sample-compositing and characterization program via an onsite laboratory. Facilitated early completion of the project by employing several TSD outlets (incineration, chemical stabilization, and direct landfill) to allow removal of all wastes from the site within a 14-day time frame.



ATTACHMENT B

Preparatory Phase Checklist

-	-		Cornell Dubilier Superfund Site	
Spe	tract: c. Section & Paragraph ving Sheet Numbers		Date Preparatory Held: Definable Feature of Work: Major Definable Feature:	_
1)	Personnel Present <u>Name</u>	<u>Position</u>	Company	
2)	Has each spec. paragraph, d	rawing, and shop dra	wing detail been studied? Yes No	
3)	Transmittals Involved Number and Item	Code	Contractor/Government Approval	
C-11	Have all items involved been app	proved?Yes	No	
1.	Are all materials on-hand?	Yes No		
1	Are the materials on the job-site Yes No	to be incorporated th	e same as those approved?	
]	Have all materials been checked Yes No	for contract complian	nce against approved shop drawings?	
]	Equipment to be used in Executi	ng the Work:		
]	tems not on-hand or not in com	pliance with transmi	ttals:	
2.	Tests required in accordance Test	with contract requirer <u>Paragraph</u>	nents:	
3.	Accident Prevention Planni Activity Hazard Analysis - Se	-	Measures:	

F-1 Applicable Outlines (Attach completed copies) Activity Hazard Analysis

Activity	Hazard(s)	Controls

L	
<u>Att</u>	erational Equipment Checklist ached For:
<u>— Оп</u>	<u>File For:</u>
	Have procedures for accomplishing work been reviewed with appropriate people? YesNo of Work/Method of Construction:
Safety I	ssues:
Spill Pro	evention Issues:
	Has all preliminary work been accomplished in accord with contract requirements and is this segment of rk ready to start? Yes No
H-1	Explain any problems:
1. Rer CQCSM	marks: 1 Comments:
Contrac	ctor's Comments:
	CQM Project Engineer

Operational Equipment Checklist Cornell Dubilier Superfund Site

Date:			
Equipn	nent Checked:		
Check	Performed By:		
Evaluai	tion Criteria		
	Safety-Equipment		
	Lights		
	Backup alarm		
	Fire extinguisher		
\Box	Seat Belt		
	Horn		
	Windshield		
	Other		
	Physical Inspection		
	Evidence of contamination		
	Certificate of Decontamination		
	Damage to frame, body and/or operable parts		
	Hoses		
	Fluid Levels		
	Tires/Tracks		
	Other		
	Name of Inspecting Person	Date	
	Signature of Inspecting Person		

ATTACHMENT D

Initial/Follow-Up Phase Inspection Checklist Cornell Dubilier Superfund Site

Dat	e:	Initial Phase	S	w-Up Phase Specifications Paragraph:
Des	scription and Location	n of Work Inspected:		
	-			
Ref	erence Contract Dray	vings:		
Α	-Personnel-Present-			
	Name	Position	Com	pany
В.			iance with t	the Contract Plans and Specifications
	YESI	NO		
	If not, explain:			
C.				Strict Compliance With The
		Contract Specification	ons: YES_	NO
	If not, explain:			
	-			
D.			NO	State Areas Where
	Improvement Is Nee	ded:		
E.	Safety Violations and	d Corrective Actions	Taken:	
F.	Remarks:			
••	KOILIIII KO.			
	Quality Control Rep	resentative]	Project Engineer

Final Phase Inspection Checklist Cornell Dubilier Superfund Site

Date:	Specif	cations Paragraph:	
Definable Feature of Work:			
Description and Location of Wo	rk Inspected:		
-			
-			
Reference Contract Drawings:			
A. Personnel Present			
Name	Position	Company	
D Materials Hand In Christ Com	miana with the Coulus	Dlane and Considerations	
B. Materials Used In Strict Con YES NO	-	Plans and specifications	
If not, explain:			
, -			
C. Procedures and/or Work M		<u> - </u>	
Requirements of the Contrac	et Specifications: YES	NO	
If not, explain:			
-			
D. Workmanship Is Acceptable	. YESNO Sta	ite Areas Where Improvement	
Is Needed:			
E. Remark			
Quality Control Representat		Project Freinsen	
Quanty Control Representat	IVE	Project Engineer	

MAST	ER QUAL	TY CONTRO	L DEFICIENCY LIST						
Contr	act Numb	er:	Site		Prime Contractor:				
No.	Date	Location	Description of Deficiency	Corrective Action	Correction Date	CQ	CSN Ini	I/ QAR t.	Remarks
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12	,								
13									

ATTACHMENT G

Daily Quality Control Report

		Date		
Project: Cornell Dubi	lier Superfund Site		Contract: Location: South Plain	field, NJ
Report No.		Contract Day:	Job No.	
Weather Summary: Precipitation Summa	ry:		Temperature: High: Work Hours:	Low:
Description and Loca	tion of Work:			
Work Performed by S	evenson:			
• Sevenson Subcontrac	ctors On-Site No	. Subcontractor l	Personnel	,
Work Performed by S	evenson Subcontra	ctors:		
Equipment Brought T	o or Taken from the	Site by Sevenso	on:	
Material Brought To c	or Removed from the	e Site by Sevens	on:	
General Observations •	5:			
Observations During •	Training:			
Verbal Instructions to	Sevenson from US	ACE:		
Issues, Which May Le	ead to Potential Mod	lification(s):		
Sevenson Safety Issu	ies:			
Man-hours Worked T Sevenson Visitors to		Total Man-ho	ours To-Date:	
Other:				
representative, have in	spected the work per ermined that all mater	formed this day b ials, equipment, a	correct, and that I, or my y the Prime Contractor a nd workmanship are in s	nd each
C	QM		Date	

ATTACHMENT H

Environmental/Spill/Soil Erosion Protection Review Cornell Dubilier Superfund Site

	on Control Ba r Types In-Plac		onal?		
	Silt Fence	Location:			
	Hay Bales	Location:			
	Trenches	Location:			
Ü	Other		Location:		
	Other		Location:		
	Storm drains	protected?			
	Mud mats in-	place and fun	ctional (i.e., not loaded with mud)	?	
	Stockpiled so	oil protection i	ı-place?		
Spill F	Response:				
Gener	Spill response	e equipment/m nse personnel (Number posted	conspicuously in multiple locations	ns, sand, bentonite, etc.)	
	Location of on Noise Control. Dust Control/ Proper housek	'Monitoring	ıge		
		CQM		Date	

ATTACHMENT I

Daily Safety Log – Cornell Dubilier Superfund Site				
Date:	Work Period Covered:			
Weather Conditions: Temperature: High Low				
Summary of Day's Work Activities:				
Equipment Utilized by Safety Monitors:				
Protective Clothing and Equipment Being Used ((by task):			
Physical Condition of Workers (note any heat or o	cold stress or other medical problems)			
Accidents or Breach of Procedures:				
Description of Monitoring and Samples Taken:				
Miscellaneous:				
Name:	Title: Safety and Health Officer			
Signature:				

<u>ATTACHMENT I</u>

Field Monitoring Results - Cornell Dubilier Superfund Site **Prevailing Wind Direction:** Date: Location Reading Time Instrument Name: Title: Site Safety and Health Officer

Signature:

ATTACHMENT K

Field Sample Collection Checklist

Project Name/Job Number: Cornell Dubilier Superfund Site

Sampling Location:

Sampling Identification Number:

Sampling Date:

Complete this form for each sampling location inspected. Answer each question by checking the appropriate column (yes, no, not observed (N/O), or not applicable (N/A). If "no" is checked, provide an explanation of the non-compliance and associated corrective action(s).

General Were new protective gloves worn between sampling locations and/or intervals?	Yes	140	N/O	19729
		Ш	Ш	
Were samples collected using methods described in the FSP?				
Were sample containers filled in the appropriate order?				
Was sampling equipment appropriate for the purpose and site conditions?			_	
Was sampling equipment decontaminated or disposable/dedicated equipment				
used between each sample?				
Were procedures for collecting QA/QC samples followed as per the FSP?				
Were sampling locations properly identified by land survey?				
Were bottles adequately protected from contamination prior to sample collection?				
Field Sampling for Chemical Analysis Were sampling parameters stable before sample collection (as per the FSP)?				
Was a field sampling form completed?				
Were the analytical parameters and QA/QC samples recorded on the field				
sampling form?				
Was head space in sample contained for volatiles eliminated?				
Were trip blanks labeled and sent with samples as designated in the FSP?		Ц		ابسا
Notes/Comments				
QC Inspector Name and Signature:				-
Date:				

ATTACHMENT L

Decontamination Checklist

Project Name/Job Number: Cornell Dubilier Superfund Site

Sampling Location: Sampling Date:

Complete this form for each sampling location inspected. Answer each question by checking the appropriate column (yes, no, not observed (N/O), or not applicable (N/A). If "no" is checked, provide an explanation of the non-compliance and associated corrective action(s).

Equipment Was all sampling equipment decontaminated properly prior to use and	Yes	No	N/O	N/A
between sample intervals?				
Was each decontamination event recorded in the log book?				
Was IDW (decontamination water) handled properly?			<u> </u>	
Notes/Comments				
QC Inspector Name and Signature:				

ATTACHMENT M

Field Documentation Checklist Project Name/Job Number: Cornell Dubilier Superfund Site Sampling Location: Sampling Date:					
Complete this form for each sampling location inspected. Answer each q appropriate column (yes, no, or not applicable (N/A). If "no" is checked, p compliance and associated corrective action(s). Field Documentation	uestior provide	n by ch an ex	ecking t	he n of the n	on-
Was all original field data recorded in black indelible ink?	Yes	No	N/O	N/A	
Were log books filled out properly, accurately recounting the days' events?					
Were all field forms completed and information accurately recorded:					
Field Sampling Forms					
Chain of Custody Forms					
Field Log Books					
List (any) additional forms completed:					
					—
					
Was field documentation forwarded to Sevenson office for peer/QC review?					
Were deficiencies reported to the Field Sampling Manager?					
Notes/Comments					
QC Inspector Name and Signature:					_
Date:					
Packing, Storing, and Shipment of Samples of Project Name/Job Number: Cornell Dubilier Superfund Site Sampling Location: Sampling Date: Complete this form for each sampling location inspected. Answer each of			necking	the	
appropriate column (yes, no, not observed (N/O), or not applicable (N/A)). If ch	ecked,	, provide	an an	
explanation of the non-compliance and associated corrective action(s).					
Packing, Storing, and Shipment of Samples		Y	es No	N/O	N/
Were the samples handled according the FSP and QAPP?		(
Sevenson Environmental Services, Inc.© 32				_	,,

Did the samples remain on ice or refrigerated (except for sample transfer from coolers or refrigerators) from collection until the cooler was taped for shipment?

Were Chain of Custody forms filled out accurately and completely including the project name and number, sampling date and time, analytical parameters, preservatives, size and number of containers for each analytical parameter, and media sampled?

Were Chain of Custody forms signed and dated by the preparer and the form taped to the inside of the cooler lid?

Were signed and dated custody seals properly placed on the cooler and the cooler sealed with strapping tape?

Was a shipping label attached to the cooler?

Notes/Comments

QC Inspector Name and Signature:

Date: _____

ATTACHMENT O

Progress Meeting Agenda Cornell Dubilier Superfund Site

- 1. Attendees at Meeting
- 2. Corrections, Review, and Approval to Previous Minutes
- 3. Health and Safety

Man-hours worked on the site (StartDate- to-date), with zero recordable, reportable or work time lost injuries or incidents.

Safety Deficiencies (see Master Safety Deficiency List)

- 4. Work Progress
- 5. Field Observations, Problems, and Conflicts
- 6. Work Schedules

Problems Which Impede the Schedule Review of Off-site Delivery Schedule Corrective Measures to Regain the Project Schedule Revision to the Project Work Schedule Two Week Look Ahead

7. Quality Control

Quality Control Summary Reports - submitted through the week of

Preparatory Inspections -

Initial Inspections -

Final Inspections -

Other Inspections -

Submittals Update

Quality Control Deficiencies (see Master Quality Control Deficiency List)

- 8. Extra Work

8.

Plans Submitted:

Plans Reviewed:

- Critical:
- _
- 9. Community Relations/Public Affairs Issues
- 10. Review of Old Action Items
- 11. New Action Items
- 12. Other Business
- 13. The next Project Meeting will be held

at the meeting. Any misunderstanding of	or misinterpretation and any understanding of what took place or misinterpretation should be forwarded to the undersigned - in for incorporation into the minutes.
CQM	Date
cc: File Meeting Attendees	Attachments:

ATTACHMENT P

CHECK LIST FOR MANIFEST Cornell Dubilier Superfund Site

	Corrior Businer Cuperturia Cite
	MANIFEST NUMBER:
	WASTE GOING OUT:
	SHIPMENT DATE:
□ DF	TRAILER OR BOX NUMBER:
	Driver Licensed for Hazardous Waste Hauling (Class A CDL and required endorsements).
	Truck and Trailer Inspection Decals Current.
	Truck and Trailer License Plates Current.
	Truck and Trailer New Jersey DEP Decals Current.
	Trailer has Placards on All (4) Sides. ANIFEST:
	Uniform Manifest Shall Have POC with 24 Hr Phone Number other than US Government.
	Check All ID Numbers on Forms.
	Signature Block shall be "On Behalf of USEPA", and signed by USACE personnel.
	Current Profile (Waste) for Receiving Facility: Facility Acceptance Number Must Be Within 1 Year.
<u>LC</u>	DADS: SLUDGE:
	Check (Visual) Inside Box for:
	Free Standing Liquids (Assure that Trucker See You).
	No Other Miscellaneous Wastes than That Specified on the Uniform Manifest.
	Ensure That The Box Left Has New Clean Plastic Liner and Cover.
	Check (Visual) the Tarp For Cuts, Rips or Any Other Defects Which May Allow "Free Standing Liquids" if Rained On. LIQUIDS:
	Check (Visual) For Structural Inspection Dates (Tankers) Are Current.
	Have Trucker Dip Tanker Prior To Filling and After Filling for Estimate of Gallons. DRUMS:
	Are all drums properly labeled and marked?
	Are all drums DOT-shippable (structurally sound, non-leaking, etc.)?
	Other

INSTRUCTIONS

- 1. Section 1 will be initiated by the contractor in the required number of copies.
- 2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals, mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
- 3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
- 4. Submittals requiring expeditious handling will be submitted on a separate form.
- 5. Separate transmittal form will be used for submittals under separate sections of the specifications.
- 6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications also, a written statement to that effect shall be included in the space provided for "Remarks".
- 7. Form is self-transmittal; letter of transmittal is not required.
- 8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in Column c, Section 1.
- 9. U.S. Army Corps of Engineers approving authority will assign action cods as indicated below in space provided in Section I, Column I to each item submitted. In addition, they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, Column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A	Approved as Submitted	E –	Disapproved (See Attached)	
B	Approved, except as noted on drawings	F-	Receipt Acknowledged	
C	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX –	Receipt Acknowledged, does not components	oly as noted with
D	Will be returned by separate correspondence	G	Other (Specify)	

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

QUALITY CONTROL SUMMARY OF TESTS Cornell Dubilier Superfund Site ATTACHMENT Q Contract Number: Prime Contractor: Acceptance Specification Criteria Remarks Section Paragraph **Description of Test** Frequency No. 2 3 4 5 6 8 9 10 11

12

TR	ANSMITTAL OF SHOP DRAWINGS, EQUIPM	MENT DATA, MATI	ERIAL SAMPLES, OR	DATE			TRANSMITTAL	. NO.	
	MANUFACTURER'S CERTIFICA	ATES OF COMPLIA	ANCE		08/01/2012		0.	1351-4.1	
	(Read instructions on the reverse side	e prior to initiating this fo	orm)						
	SECTION I - REQUEST	FOR APPROVAL C	OF THE FOLLOWING ITEMS	(This se	ction will be in	itiated by the o	contractor)		
US A 214 :	ronmental Residency Army Corps of Engineers State Highway 18	FROM: Sevenson Env 2749 Lackport	Road	CONTRAC W912	T NO. 2DQ-10-D-300	6 0002	CHECK ONE: THIS IS A F TRANSMIT	RESUBMITT	
	Brunswick, NJ 08816	Niagara Falls,							
SPECIFICA ransmittal			Soils Remediation 333 Hamilton Bo				CHECK ONE: THE FOR FIO X	GA DA	cr
NO.	DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.)		MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO.	NO. OF COPIES	DOCU SPEC.	REFERENCE IMENT DRAWING	FOR CONTRACTOR USE CODE	VARIATION (See Instruction No. 6)	FOR CE USE CODE
a.	b.		(See Instruction no. 8) c.	d.	PARA. NO. e.	SHEET NO. f.	g.	h.	i.
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			<u> </u>						
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	William Committee of the Committee of th		N II - APPROVAL ACTION		<u> </u>		l		•
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Comments Matrix – PCB Protection Plan (Transmittal No 01351-4) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc. Reviewer – ARCADIS-US. Inc.

			Reviewer – ARCADIS-US, Inc.	
Reviewer Comment No	Page /Para	Section	Comment	Response
1	1	PCBs Hazard	The plan indicates a PCBs fact sheet is provided in Appendix A, which was not included.	Appendix A has been included with fact sheet
2	4	Summary	Indicate when the PCBs protection program will be established, and where it will be accessible.	Added to Suimmary

PCB Protection Plan

Rev 1

Cornell Dubilier Superfund Site
OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

July 2012

Sevenson Environmental Services, Inc. PCB Protection Plan

1.0 Purpose

The purpose of this plan is to outline the hazards of polychlorinated biphenyls (PCBs) to site personnel and the public. It will also detail the PCBs control program.

2.0 PCBs Hazard

PCBs are a mixture of individual chemicals which are no longer produced in the United States but are still found in the environment. Health effects that have been associated with exposure to PCBs include acne-like skin conditions (chloracne) in adults and neurobehavioral and immunological changes in children. PCBs are known to cause cancer in animals. PCBs have been found in at least 500 of the 1,598 National Priorities List sites identified by the EPA. A PCBs fact sheet is in Appendix A.

The two means of exposure are inhalation and skin contact.

The four major operations where there is the potential for exposure are:

- Contaminated material excavation and screening;
- Management of contaminated material stockpiles; and
- Decontamination of personnel, equipment, and/or machinery.

3.0 Control Program

The PCBs control program is designed to prohibit contact and inhalation includes:

- Worker training
- Medical surveillance
- Personal protective equipment
- Personal and perimeter air monitoring
- Dust control
- Decontamination procedures

3.1 Worker Training

All site workers who have the potential for exposure to PCBs will participate in the following training programs:

- 40 hour OSHA HAZWOPER and, if necessary, an 8 hour refresher.
- Site specific this would include a review of the Site Specific Safety and Health Plan, work practices, activity hazard analyses, results of air monitoring program, and concerns including safety deficiencies and accidents.
- Daily safety meetings all site personnel are required to attend and items to be discussed would include review of the day's activities and their associated hazards and controls, safety and health concerns, and action items.

 Hazard communication – as part of this OSHA required training, emphasis will be placed on the health effects of PCBs, exposure potential, and control programs.

3.2 Public Information

A Quality of Life Plan which outlines the effects of the work and PCBs have on the general public has been prepared. This plan also describes performance standards which are designed to protect the public. A copy of the plan will be made available to the public. In addition Sevenson will provide information to the EPA and USACOE regarding work being performed, air monitoring results, and implementation of various control programs. This information at the EPA's discretion can then be made available to the public.

3.3 Medical Surveillance

All workers who have the potential to be exposed to PCBs will participate in Sevenson's medical surveillance program.

The purposes of this program are to determine:

- The capability of the worker to perform the work. This will be accomplished by the physical examination by the physician and the review of the medical and work histories.
- The ability to wear respiratory protection. The pulmonary function test and X-ray will assist the physician in making this determination.
- Whether there are any prior physical and/or health conditions which may be advise affected by the work and/or exposure to the contaminants. The physician will primarily review the results of the liver enzyme blood tests and pre work serum PCB level.
- Whether any physical or biological systems have been affected by the work. As part of the medical surveillance program, pre and past work serum PCBs will be determined.

3.4 Personal Protective Equipment

The proper wearing of personal protective equipment is an integral component of the worker protection program. An evaluation of the potential for PCBs exposure and the proper ensemble of personal protective equipment has been made. The initial level of protection for workers exposed to PCBs is Level C which includes the wearing of protective clothing to protect against contact and respirators to prevent the inhalation hazard. The personal protective equipment will be continuously evaluated and may be modified depending upon actual work conditions.

3.5 Personal and Perimeter Air Monitoring

The air monitoring program will determine both worker and public exposure to PCBs. The worker air monitoring program includes:

- Personal monitoring for PCBs. This monitoring will be accomplished using established NIOSH methods and will determine the total concentration of PCBs to which a worker is exposed.
- Real time dust monitoring. The results of this will be used as an indicator of worker's exposure to PCBs and effectiveness of dust control.

Perimeter air monitoring will be used to determine the potential for public exposure to PCBs. This monitoring includes:

- Perimeter monitoring for PCBs. This monitoring will be accomplished using an established EPA method and will determine the total concentration of PCBs to which the public is potentially exposed.
- Real time dust monitoring. The results of this will be used as an indicator of PCB exposure and the effectiveness of dust control.

3.6 Dust Control

PCBs have the ability to be absorbed onto dust. Therefore, the reduction of dust levels is an important part of the PCBs control program.

Dust control measures which can be used to reduce emissions include:

- Adding moisture to the soil.
- Covering soil or soil piles with polyethylene.
- Using a misting system with an odor neutralizing additive.
- Applying foams to the soil or soil piles.
- Reducing the speed of equipment which disturbs the soil.
- Reducing the number of pieces of equipment.
- Installing barriers to reduce wind speed.
- Limiting the rate of excavation.
- Removing accumulated dirt and soil from problem areas, and/or cover, enclose, or isolate dust generating areas/surfaces to shield them from wind and sunlight.
- Increase level of worker awareness and instruct them in implementation of any new or modified operating procedures.
- Perform routine audits of dust suppression methods and work areas for dust surfaces.

3.7 Decontamination Procedures

Both equipment and personal decontamination will occur using standard methods.

Personal decontamination will occur in the contaminant reduction zone. The following is an outline of this procedure:

- Wash boots and gloves in decontamination solution.
- Remove boots.
- Remove outer gloves.
- Remove protective suit.
- Remove respirator.

Remove inner gloves.

During equipment contamination, workers will be wearing Level C protection. All equipment and machinery that were in the Exclusion Zone leaving the site will be decontaminated.

4.0 Summary

A comprehensive PCBs protection program will be established at the Cornell – Dubilier Site prior to site activity as part of the initial site safety briefing. It will be maintained throughout the handling of contaminated material. Copies will be accessible at the Health and safety trailer. This program will be regularly reviewed by the Health and Safety Manager, Site Safety and Health Officer, and Site Superintendent to determine its effectiveness and whether any modifications have to be made to it.

APPENDIX A

PCB Fact Sheet

ToxFAQsTM for

Polychlorinated Biphenyls (PCBs)

February 2001

This fact sheet answers the most frequently asked health questions about polychlorinated biphenyls (PCBs). For more information, you may call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Polychlorinated biphenyls (PCBs) are a mixture of individual chemicals which are no longer produced in the United States, but are still found in the environment. Health effects that have been associated with exposure to PCBs include acne-like skin conditions in adults and neurobehavioral and immunological changes in children. PCBs are known to cause cancer in animals. PCBs have been found in at least 500 of the 1,598 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What are polychlorinated biphenyls (PCBs)?

Polychlorinated biphenyls are mixtures of up to 209 individual chlorinated compounds (known as congeners). There are no known natural sources of PCBs. PCBs are either oily liquids or solids that are colorless to light yellow. Some PCBs can exist as a vapor in air. PCBs have no known smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977 because of evidence they build up in the environment and can cause harmful health effects. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices containing PCB capacitors, and old microscope and hydraulic oils.

What happens to polychlorinated biphenyls (PCBs) when they enter the environment?

PCBs entered the air, water, and soil during their manufacture, use, and disposal; from accidental spills and leaks during their transport; and from leaks or fires in products containing PCBs.

PCBs can still be released to the environment from hazardous waste sites; illegal or improper disposal of industrial wastes and consumer products; leaks from old electrical transformers containing PCBs; and burning of some wastes in incinerators.

PCBs do not readily break down in the environment and thus may remain there for very long periods of time. PCBs can travel long distances in the air and be deposited in areas far away from where they were released. In water, a small amount of PCBs may remain dissolved, but most stick to organic particles and bottom sediments. PCBs also bind strongly to soil.

PCBs are taken up by small organisms and fish in water. They are also taken up by other animals that eat these aquatic animals as food. PCBs accumulate in fish and marine mammals, reaching levels that may be many thousands of times higher than in water.

How might I be exposed to polychlorinated hiphenyls (PCBs)?

PCBs entered the air, water, and soil during their manufacture, use, and disposal; from accidental spills and leaks during their transport; and from leaks or fires in products containing PCBs.

PCBs can still be released to the environment from hazardous waste sites; illegal or improper disposal of industrial wastes and consumer products; leaks from old electrical transformers containing PCBs; and burning of some wastes in incinerators.

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How can polychlorinated biphenyls (PCBs) affect my health?

The most commonly observed health effects in people exposed to large amounts of PCBs are skin conditions such as acne and rashes. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. PCB exposures in the general population are not likely to result in skin and liver effects. Most of the studies of health effects of PCBs in the general population examined children of mothers who were exposed to PCBs.

Animals that ate food containing large amounts of PCBs for short periods of time had mild liver damage and some died. Animals that ate smaller amounts of PCBs in food over several weeks or months developed various kinds of health effects, including anemia; acne-like skin conditions; and liver, stomach, and thyroid gland injuries. Other effects of PCBs in animals include changes in the immune system, behavioral alterations, and impaired reproduction. PCBs are not known to cause birth defects.

How likely are polychlorinated biphenyls (PCBs) to cause cancer?

Few studies of workers indicate that PCBs were associated with certain kinds of cancer in humans, such as cancer of the liver and biliary tract. Rats that ate food containing high levels of PCBs for two years developed liver cancer. The Department of Health and Human Services (DHHS) has concluded that PCBs may reasonably be anticipated to be carcinogens. The EPA and the International Agency for Research on Cancer (IARC) have determined that PCBs are probably carcinogenic to humans.

How do polychlorinated biphenyls (PCBs) affect children?

Women who were exposed to relatively high levels of PCBs in the workplace or ate large amounts of fish contaminated with PCBs had babies that weighed slightly less than babies from women who did not have these exposures. Babies born to women who ate PCB-contaminated fish also showed abnormal responses in tests of infant behavior. Some of these behaviors, such as problems with motor skills and a decrease in short-term memory, lasted for several years. Other studies suggest that the immune system was affected in children born to and nursed by mothers exposed to increased levels of PCBs. There are no reports of structural birth defects caused by exposure to PCBs or of health effects of PCBs in older children. The most likely way infants will be exposed to PCBs is from breast milk. Transplacental transfers of PCBs were also reported In most cases, the benefits of breast-feeding outweigh any risks from exposure to PCBs in mother's milk.

How can families reduce the risk of exposure to polychlorinated biphenyls (PCBs)?

You and your children may be exposed to PCBs by eating fish or wildlife caught from contaminated locations. Certain states, Native American tribes, and U.S. territories have issued advisories to warn people about PCB-contaminated fish and fish-eating wildlife. You can reduce your family's exposure to PCBs by obeying these advisories.

Children should be told not play with old appliances, electrical equipment, or transformers, since they may contain PCBs.

Children should be discouraged from playing in the dirt near hazardous waste sites and in areas where there was a transformer fire. Children should also be discouraged from eating dirt and putting dirty hands, toys or other objects in their mouths, and should wash hands frequently.

If you are exposed to PCBs in the workplace it is possible to carry them home on your clothes, body, or tools. If this is the case, you should shower and change clothing before leaving work, and your work clothes should be kept separate from other clothes and laundered separately.

Is there a medical test to show whether I've been exposed to polychlorinated biphenyls (PCBs)?

Tests exist to measure levels of PCBs in your blood, body fat, and breast milk, but these are not routinely conducted. Most people normally have low levels of PCBs in their body because nearly everyone has been environmentally exposed to PCBs. The tests can show if your PCB levels are elevated, which would indicate past exposure to above-normal levels of PCBs, but cannot determine when or how long you were exposed or whether you will develop health effects.

Has the federal government made recommendations to protect human health?

The EPA has set a limit of 0.0005 milligrams of PCBs per liter of drinking water (0.0005 mg/L). Discharges, spills or accidental releases of 1 pound or more of PCBs into the environment must be reported to the EPA. The Food and Drug Administration (FDA) requires that infant foods, eggs, milk and other dairy products, fish and shellfish, poultry and red meat contain no more than 0.2-3 parts of PCBs per million parts (0.2-3 ppm) of food. Many states have established fish and wildlife consumption advisories for PCBs.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological profile for polychlorinated biphenyls (PCBs). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

Agency for Toxic Substances and Disease Registry Division of Toxicology 1600 Clifton Road NE, Mailstop E-29 Atlanta, GA 30333

Phone: 1-888-422-8737 FAX: (404) 498-0057

Cornell-Dubilier Electronics Superfund Site Operable Unit 01 – Property Remediation South Plainfield, New Jersey

South Plainfield, New Jersey CONTRACT No. W912DQ-10-D-3006 TASK ORDER: 0002

Perimeter Air Monitoring Plan

Prepared by: SEVENSON ENVIRONMENTAL SERVICES, INC.

2749 Lockport Road

Niagara Falls, New York 14305

Paul J. Hitcho, PhD, CIH

Paul Hitcher

V.P. Director of Health and Safety

Sevenson Environmental Services, Inc.

Revision No. 1 July 2012

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Attachments

Attachment 1 – Cornell Dubilier PCB Risk Assessment

1.0 Introduction

Sevenson Environmental Services, Inc. is under contract to the U.S. Army Corps of Engineers (USACE), Kansas City District Pre-Placed Remedial Contract (PRAC), to perform remedial action at the Cornell-Dubilier Electronics Superfund Site, South Plainfield, New Jersey.

The remedial action effort will focus on the remediation of the Cornell-Dubilier Electronics Superfund Site, Operable Unit 01 (OU-1), in the Borough of South Plainfield, Middlesex County, New Jersey. OU-1 consists of contaminated soils located on residential properties. Work includes excavation of 2,500 cubic yards of contaminated soils followed by backfilling of excavated areas; transportation of contaminated soil to an offsite facility for disposal; restoration; sampling and analysis of soil, and air; and other activities necessary for complete and proper remediation of the site.

1.1 Plan Objective

The objective of this Perimeter Air Monitoring Plan (PAMP) is to define the requirements and designate the air monitoring protocols to be followed during the remedial action at the Cornell-Dubilier site.

1.2 Acceptance and Modification

This plan will be submitted to the Contracting Officer for review and approval. Any deficiencies in this plan will be corrected and the plan resubmitted for acceptance.

Sevenson will keep a copy of the PAMP on site for review by the USACE and its representatives. As the work proceeds, the PAMP will be adapted to new situations and conditions. Changes and modifications to the PAMP will be made with the knowledge and concurrence of the Air Quality Specialist (AQS), the Site Superintendent, and the Contracting Officer. The requested modification will not be implemented until authorized in writing by the Contracting Officer. Should the Contracting Officer require a modification of any portion or provision of this Plan, the Contracting Officer will notify Sevenson in writing of such modifications.

1.3 Contents

This plan contains the following provisions:

- Organizational structure indicating personnel responsibilities and the qualifications of the AQS.
- Air quality monitoring and sampling procedures.
- Action levels.
- Control of airborne contaminant emissions if and when action levels have been exceeded.
- Collection of meteorological data.
- Description of air monitoring and meteorological equipment, operation and maintenance procedures, and calibration schedules.
- Sampling and Monitoring Results Reporting.

2.0 Air Monitoring Personnel

2.1 Air Quality Specialist (AQS)

Paul J. Hitcho, PhD, CIH

His responsibilities include:

- Preparation of the air monitoring and sampling protocols for the site work.
- Equipment selection.
- Determining the times, durations, and locations of air measurements and samples.
- Develop protocols to determine upwind location and to adjust monitoring and sample results for ambient background.
- Approving the qualifications of the air monitoring technicians.
- Interpreting the results of the air monitoring program.
- Approving and signing the air quality reports submitted to the Contracting Officer.
- Periodically evaluating if the equipment and protocols are adequately representing perimeter conditions.
- Auditing the PAMP and initiating corrective action, when necessary.

2.2 Air Monitoring and Sampling Technicians (AMAT)

Eric Tschudi, CHST

Their responsibilities include:

- Calibration and operation of the air monitoring instrumentation.
- Performing the air monitoring activities as specified in the PAMP.
- Sample submission to the approved laboratory.
- Discussions with the AQS and Contracting Officer on the implementation of the air monitoring program.

3.0 Monitoring and Sampling Procedures

The monitoring and sampling program will detect and quantify organic vapors, respirable particulate, oxygen, combustible gas, and polychlorinated biphenyls (PCBs). This will be accomplished by implementing both a real time and EPA method T0-4A air monitoring protocols. The real time program will detect and quantify organic vapors, respirable particulate, oxygen, and combustible gases. EPA method T0-4A will qualify and quantify airborne PCBs.

Only T0-4A sampling and analysis for PCBs will be performed because of the following reasons:

- PCBs are the primary contaminant of concern based upon their concentrations and location throughout the site.

- The respirable dust action level(s) are below either exposure limit for PCBs. (See Table 1.)

3.1 Real Time Monitoring

Real time monitoring for respirable dust will be conducted using TSI Model 8520 Dust Traks.

Four respirable dust monitors will be placed at the site perimeter. One of these will be in upwind position. The purpose of this monitoring location is to determine the background level of respirable dust. The other three will be located in the downwind position. The positioning of these instruments will be determined by the meteorological data primarily wind direction and the professional judgment of the AMT. The AMT will take into account the location of work relative to the receptors, type of work being performed, and potential for airborne emissions. These locations will be documented on a site map and will become a part of the daily air monitoring report. This monitoring is to be conducted during the work shift when handling contaminated soils.

Area RAEs which can detect total organic vapors, combustible gas, and oxygen will be placed at the same locations as the respirable dust monitors. This monitoring is to be conducted during the excavation of contaminated material.

3.2 High Volume PCB Monitoring

Sampling and analysis for total airborne PCBs will be conducted using EPA Method T0-4A. In this method a high volume sampler is used to collect PCBs on a sorbent cartridge containing polyurethane foam (PUF). The sampler is operated for 24 hours, and the sample is sent to a laboratory for analysis. This high volume PUF procedure is capable of determining a PCB reporting limit of 1 ug.

High volume sampler will be used during the excavating, handling and treating of contaminated material. The high volume samples will be placed in the same locations as the real time instruments. High volume samples will be collected at the rate of one sample per month at each of the three property clusters when handling PCB contaminated soils.

4.0 Action Levels

Real time action levels for respirable dust, organic vapors, combustible gas in air, and oxygen are based on the ACGIH recommended values for PCBs and the EPA PM_{10} Standard. However, Sevenson is proposing a change of the real time downwind work shift action level from 100 ug/m^3 to 150 ug/m^3 above background. These action levels are based upon the following:

- A perimeter standard of 0.150 ug/m³ for fugitive dust. This number is based on the EPA PM₁₀ standard and the Cornell Dubilier Risk Assessment (see attachment 1) for airborne PCBs on 0.250 ug/m³ to a member of the public at the fence line.
- Maximum PCB concentration of 1,500 mg/kg. This concentration has been reported in the OU-01 Remedial Design Drawing prepared by Arcadis Malcolm Pirnie dated January 2012 on drawing Figure 3.

The action level for respirable dust is based on the standard and reported contaminant concentration. The exposure limit is calculated by the following formula:

Dust Exposure Limit mg/m³ =
$$\frac{(1.0E + 06 \text{ mg/kg})(PCB \text{ Exposure Limit mg/m}^3)}{(Maximum PCB \text{ Concentration mg/kg})}$$

Dust Exposure Limit mg/m³ =
$$\frac{(1.0E + 06 \text{ mg/kg})(2.5E - 04 \text{ mg/m}^3)}{(1500 \text{ mg/kg})}$$

The calculated dust exposure limit is 0.166 mg/m^3 . This value is greater than the EPA PM₁₀ standard of 0.150 mg/m^3 , so the EPA PM₁₀ standard will take priority.

Table 1 is a summary of the upwind real time air monitoring program.

Table 1 – Upwind Real Time Air Monitoring Program

Analyte	Action Level	Frequency per location	Analytical Method	Action Required
Real Time Vapor Monitoring	None	Continuously during the work day. Log 15 minute averages.	Direct Reading Photoionization meter with data logger	None
Combustible gas in air	None	Twice per day, once in morning and once in evening.	Direct Reading instrument with data logger	None
Oxygen	None	Twice per day, once in morning and once in evening.	Direct Reading instrument with data logger	None
Real Time Respirable Dust (PM10)	None	Continuously during the work day. Log 15 minute averages.	Direct Reading dust meter with data logger.	None

Table 2 is a summary of the downwind real time air monitoring program.

Table 2 – Downwind Real Time Air Monitoring Program

Analyte	Action Level	Frequency per location	Analytical Method	Action Required
Real Time Vapor Monitoring	5 ppm (15 minute)	Continuously during the work day. Log 15 minute averages.	Direct Reading Photoionization meter with data logger	First instance: Evaluate engineering controls, implement vapor emission control. After an hour: the above steps plus Stop work and notify Contract Officer. Resume work after CO acceptance of control measures.
Combustible gas in air	More than 10 percent LEL	Twice per day, once in morning and once in evening.	Direct Reading instrument with data logger	Evacuate area.
Oxygen	Less than 19.5 percent or more than 22 percent	Twice per day, once in morning and once in evening.	Direct Reading instrument with data logger	Evacuate area if oxygen levels out of range.
Real Time Respirable Dust (PM10)	150 ug/m³ (15 minute) 125 ug/m³ (work shift)	Continuously during the work day. Log 15 minute averages.	Direct Reading dust meter with data logger.	First instance: Evaluate engineering controls, implement dust control. After an hour: the above steps plus Stop work and notify Contract Officer. Resume work after CO acceptance of control measures.

Note:

- 1. Ambient concentrations, over background.
- Frequencies listed in the table are for active construction periods. The Contracting Officer may modify this frequency.
- Sampling will comply with EPA protocols and will achieve detection limits to demonstrate compliance with specified action levels.
- 4. Total dust and compound-specific action levels are evaluated using data corrected for upwind values.
- 5. Four locations (north, south, east and west).
- If perimeter action levels are exceeded, the Contractor shall stop work and initiate dust controls or other remedy actions immediately.

5.0 Control of Airborne Emissions

Sevenson will compare the highest of the direct reading measurements for organic vapor and dust downwind of the site (minus the upwind value) to the action levels in Table 2. If the wind is blowing from a direction for which there is not monitor, the upwind value will be assumed to be the lowest of the values collected by any of the monitors.

When the ambient air monitoring system reveals that the action level has been exceeded for 15 or more minutes, Sevenson will evaluate its engineering controls and implement emission controls. If this process succeeds, Sevenson will report the exceedance in its daily air monitoring summary report.

When the action level has been exceeded for an hour or more, Sevenson will temporarily suspend intrusive activities, notify the Contracting Officer's Representative, and implement corrective action(s) to reduce site related emissions to below required action levels. The adequacy of these controls is subject to acceptance by the Contracting Officer Representative prior to restarting intrusive activities. All instances where an action level is exceeded will be reported in the daily air monitoring summary report.

The following are emission control measures which may be used to reduce emissions below the action level:

- Adding moisture to the soil.
- Covering soil or soil piles with a polyethylene cover.
- Using a misting system with an odor neutralizing additive.
- Applying foam to the soil or soil piles.
- Reducing the speed of equipment which disturbs the soil.
- Reducing the number of pieces of equipment which disturb the soil.
- Installing barriers to reduce wind speed.
- Limiting the rate of excavation.
- Remove accumulated dirt and soil from problem areas, and/or cover, enclose, or isolate dust generating areas/surfaces to shield them from wind and sunlight.
- Increase level of worker awareness and instruct them on implementation of any new or modified operating procedures.
- Perform routine audits of dust suppression methods and work areas for dust sources.

6.0 Air Monitoring and Meteorological Equipment – Operation, Maintenance, and Calibration

The equipment to be used in the air monitoring program includes:

- TSI Model 8520 Dust Trak–Sampler determines respirable dust.
- RAE Systems Area RAE determines volatile organic compounds, percent oxygen, and combustible gases in air.
- Tisch Environmental High Volume Sampling Pump equipped with a PUF sampling head collects PCB contaminated dust and vapor.

All air monitoring equipment will be identified on the Master Equipment List for the project.

6.1 TSI Model 8520 Dust Trak

The TSI DustTrak II provides direct and continuously updated readouts of concentration of airborne dust, smoke, and mist.

The TSI DustTrak II monitors in real time the concentrations of fine particulates in ambient air by a complex laser technology.

The following are the specifications of the TSI DustTrak II:

- Sensitivity 1 ug/m³
- Sample Period 1 second
- Particle Size Range 0.05 10 um
- Data Storage Capacity 50,000 records
- Temperature Range -0° to 50° C

A copy of the operating manual will be kept onsite

Routine maintenance of this instrument requires the replacement of 2 internal filters. The purposes of these filters are to protect the optics and prevent damage to the flow components. These filters are easily accessible, and filter life is one year. Factory recalibration of the instrument is recommended every year.

The TSI Dust Trak will be operated during the work shift while handling PCB contaminated material.

6.2 RAE Systems Area RAE

The Area RAE is a gas vapor detector equipped with a wireless radio frequency which allows the unit to communicate and transmit readings on a real time basis to a remotely located base controller.

The Area RAE with a Photoionization detector for volatile organic compounds, an electrochemical sensor for oxygen, and a catylytic combustion sensor for combustible gases. It is capable of determining VOCs 0.1 ppm, oxygen at 0.1%, and combustible gases at 1% of the lower explosive limit. It has data logging calibilities, a visual and audible alarm, operates in a temperature range of -20 to 45EC and up to 95% relative humidity.

Calibration will be performed before and after each use. The calibration is a two point field calibration for fresh air and the standard reference gases.

Maintenance may consist of battery replacement, sensor replacement, Photoionization detector cleaning, periodic lamp cleaning, and sampling pump replacement. The instrument will alarm when the above need replacement and/or cleaning except for the sampling pump. All of these maintenance procedures are in the Area RAE Manual. There is a copy on site.

The Area RAEs will operate continuously during the work shift when excavation activities are taking place. This is the time when the potential for release of organic vapors is at its highest. The data will be logged every 15 minutes, and the results will be transmitted to a data station in the safety station. The Area RAE will provide a report and graph.

6.3 Met One Meteorological Station

The Met One Meteorological Station has the following capabilities:

- Determination of wind speed range of 0-100 miles per hour (mph) with the starting threshold at 0.9 mph.
- Determination of wind direction range of 0-356 degrees, accuracy +/- 4 degrees.
- Determination of temperature range of 30EC to 70EC.
- Determination of relative humidity range 0-100%.
- Data logging weather conditions.

The sensors have been factory calibrated, and there are no necessary field calibrations. The general maintenance schedule is as follows:

- 6-12 months inspect sensor and possible replacement of wind speed sensor, clean relative humidity sensor.
- 12 24 months replacement of wind speed sensor bearings.
- 24 36 months recommended factor overhaul of sensors.

All of these maintenance schedules are outlined in the operating manual. A copy of this manual is on site.

The meteorological station will monitor weather conditions and data log the data continuously throughout the day. The data will be used to develop the daily weather report for the Daily Air Monitoring Report.

6.4 High Volume Sampling Pump

A Tisch Environmental High Volume Sampling Pump equipped with a PUF sampling head will be used to collect PCBs. The pump has a flow rate of approximately 280 liters per minute and is operated for 24 hours. It is recommended that the sampler be calibrated at the initial installation after motor maintenance, at least once every 3 months, or after 360 hours of sampling. However, each sampler will be calibrated pre and post use.

Routine maintenance of the sampler includes:

- Inspection of power cord.
- Inspection and cleaning of gaskets.
- Inspection and replacing the motor flange gasket and motor cushion.
- Replacing the motor carbon brushes every 400 hours of operation.

Information on these procedures can be found in the operating manual of which is on site.

7.0 Reporting

Sevenson will maintain a daily sampling report. A copy of this report will be submitted part of the Site's daily report. This report will contain:

- Calibration information.
- Meteorological conditions.
- Peak 15 minute average and time weighted averages.
- Comparison of the results corrected for background.
- Exceedance and corrective actions taken.

An air sampling log will also be maintained. The log will outline the day's sampling activities, calibration information, monitor location, and daily time weighted average, or analytical result. This log will be submitted weekly to the Contracting Officer.

Within 5 working days of the month's end, Sevenson will resubmit the daily air monitoring summary report and the weekly air monitoring results from the previous calendar month.

Cornell-Dubilier Electronics Superfund Site Operable Unit 01 – Property Remediation South Plainfield, New Jersey

South Plainfield, New Jersey CONTRACT No. W912DQ-10-D-3006 TASK ORDER: 0002

Quality of Life Plan

Prepared by: SEVENSON ENVIRONMENTAL SERVICES, INC.

2749 Lockport Road

Niagara Falls, New York 14305

Revision No. 1 July 2012

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1.0 Purpose

The purpose of this plan is to outline the conditions and their associated control methods which may affect the quality of life of residents and businesses in the vicinity of the Cornell-Dubilier Electronics Superfund site.

Performance standards will be established that set specific goals and requirements for the project. The quality of life performance standards are intended to reduce the effect of excavation, handling of contaminated material, off site transportation, and site restoration on people, residences, businesses, and community activities in the project area.

2.0 Quality of Life Performance Standards

2.1 Air Quality

Various site activities such as contaminated soil excavation and handling, and site restoration could result in the release of emissions into the air. The standard for air quality addresses the potential exposure of both adults and children in the project area to emissions from the project. The goal of the air quality program is to minimize the effects in people's health and the environment from air emissions during site activities.

The standard for air quality has both monitoring and control requirements. It has been determined that the primary air emissions would include polychlorinated biphenyl's (PCBs) and respirable fugitive dust emission.

In addition a real time air monitoring program will be conducted daily for respirable particulates. The results of this air monitoring will determine the amount of respirable particulate in the air. It will also provide an estimate of the airborne PCB based upon the amount of soil contamination. If action levels that have been established for PCBs are exceeded then control techniques can then be immediately implemented.

2.2 Odor

The New Jersey Air Pollution Control Act (APCA) prohibits the emission into the outdoor atmosphere of air contaminants in quantities that result in air pollution. Air Pollution is defined as "the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as tend to be injurious to human health or welfare, animal or plant life or property, or would unreasonably interfere with the enjoyment of life or property throughout the State and in such territories of the State as shall be affected thereby and excludes all aspects of employer-employee relationships as to health and safety standards." N.J.S.A 26:2C-2. This standard is also codified in the New Jersey Administrative Code at N.J.A.C. 7:27-5.2(a).

An odor caused by the release of an air contaminant is considered air pollution and a violation of the APCA if the Department determines that the odor has unreasonably interfered with the enjoyment of life or property.

Odors may be generated by equipment and work activity. Odors are difficult to measure because they vary depending on the concentration of the pollutant and the sensitivity of the person exposed to the odor. One of the most reliable indicators of odor emission is a

smell detected by the human olfactory sense. The most likely odor causing activity would be paving during site restoration. An asphaltic odor may then be present.

The goal of this program will be to minimize unwanted odors from the project. This will require the detection of any unwanted odor, control of the sources of the odor, and ongoing follow up of any odor complaints.

2.3 Noise

Many of the construction activities associated with the removal of PCB contaminated material will have the potential to produce noise. The goal of this program will be to minimize the effects of noise from the project on the quality of life in the surrounding communities

The performance standard for noise requires the regular monitoring of the sources of noise. The noise performance standards are based upon the Borough of South Plainfield noise ordinances. (Adopted by the Mayor and Council of the Borough of South Plainfield 2-22-82 as Ord. No. 918. Section 135-2B amended at time of adoption of Code; see Ch. 1, General Provisions, Art. I. Other amendments noted where applicable)

2.4 Lighting

No night work is anticipated for this project.

2.5 Traffic

Traffic is an issue when material is sent off-site for disposal and the delivery of backfill, material, and equipment. There is ample space for the trucks to be marshaled on site. They will exit the site in an orderly manner after they are loaded. Traffic control will be provided either by the traffic signal or a combination of the signal and a flagman. The trucks will travel on an established route through the neighborhood. A Traffic Control Plan will be developed that outlines the established route.

2.6 Working Hours

It is anticipated that the excavation and handling of contaminated material will occur from 7:00 AM - 5:00 PM. If the work has to occur during darkness, adequate lighting, as approved by the Contracting Officer, will be utilized.

3.0 Compliance with the Performance Standards

Compliance with the quality of life performance standards will be achieved by adhering to the following requirements during the work:

- Monitoring will measure the sources of potential emissions. Monitoring instruments will be placed between the potential source of the quality of life concern and the potentially affected area. Emissions will be monitored as describe in the Accident Prevention Plan, Site Safety and Health Plan, and Perimeter Air Monitoring Plan.
- Complaint evaluation and resolution will include communications with individuals raising complaints, investigations of the complaints, and appropriate responses such as monitoring or controls to address the issue(s) of concern.

- Mitigation and contingencies will be planned and implemented during the work to prevent and/or minimize potential effects.
- Reporting and notification will be required to keep the EPA and the U.S. Army Corps
 of Engineers (USACE) and other appropriate agencies informed regarding
 compliance.
- See section 4.0 for compliance protocols for Air Quality standards and monitoring.
- See section 5.0 for compliance with Odor standards.
- See section 6.0 for noise controls and monitoring.
- See section 7.0 for lighting controls and monitoring.

4.0 Compliance with Air Quality Standard

The standards for air quality for both the general public and the workers require monitoring for PCBs, respirable particulate.

At the site perimeter airborne particulate will be continuously monitored using real time instrumentation. This monitoring will occur at four locations along the perimeter of the site. The locations will be determined by the Site Safety and Health Officer (SSHO) with approval by the EPA and USACE depending on wind direction, location of the work, and professional judgment. Site specific action levels are documented in the Perimeter Air Monitoring Plan, dated May 2012. The situation will be evaluated and control techniques will be implemented.

High volume perimeter air monitoring for PCBs will also be implemented. This sampling will occur at least once per month at each property cluster handling PCB contaminated material

The following table outlines the air monitoring program:

Table 1 - Site Air Sampling							
Contaminant	Task/Activity	Type of Sample	Sampling Method	Analysis Method			
PCBs	Excavation, Material Handling Activities	Breathing Zone	Personal	NIOSH 5503			
Particulate	Excavation, Material Handling Activities	Breathing Zone	Particulate Monitor	Real Time			
PCBs	Excavation, Material Handling Activities	Site Perimeter	High Volume	EPA Method TO-4A			
Particulate	Excavation, Material Handling Activities	Site Perimeter	Particulate Monitor	Real Time			
Volatile Organic Compounds	Excavation, Material Handling Activities	Site Perimeter	Photoionization Detector	Real Time			

The actions required with the air quality requirements include:

• If air quality standards are not exceeded, operations will continue, with regular reporting to the EPA and USACE.

If air quality standard is exceeded and it <u>can</u> be easily and immediately controlled:

The event will be investigated.

Appropriate steps will be taken to resolve or correct the emission.

Follow-up reporting to the EPA and the USACE will be conducted.

If air quality standard is exceeded and it <u>cannot</u> be easily and immediately controlled:

The event will be investigated.

Additional monitoring will be performed

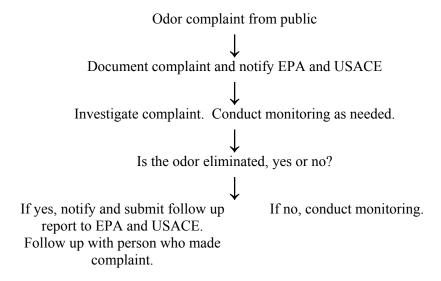
An action plan will be developed and implemented.

EPA and USACE will be notified within 24 hours of discovery, and a detailed report will be prepared.

The EPA and USACE will evaluate the methods and frequency of sampling and monitoring as the project proceeds and will consider any necessary changes when appropriate.

5.0 Compliance with Odor Standard

The performance standard for odor requires the detection of the various odors which may be present, controlling the sources of potential odors, and on-going follow-up of any odor complaints. Odor detection will be conducted at the site perimeter. If odor complaints are received, the procedure shown below will be followed:



Detection of odors by workers on the public, as well as odor monitoring will guide the actions required to comply with the standard:

- If no odors are detected, operations will continue with regular reports to EPA and USACE.
- If odors are detected and/or project related complaints are received:
- The detection and or/complaint will be investigated.
- Appropriate steps will be taken to resolve the compliant and/or event.
- Follow up with the person who made the complaint will be conducted.
- Follow up reporting to the EPA and USACE will be conducted.
- If frequent/recurrent complaints are received:
 - The detection and/or complaint will be investigated.
 - An action plan will be developed and implemented.
 - Follow up with the person who made the complaint.
 - EPA and USACE will be notified within 24 hours of discovery, and a detailed report will be prepared.

6.0 Compliance with Noise Standard

The Borough of South Plainfield, New Jersey noise ordinance is as follows:

Compliance with the noise standard will be confirmed primarily by monitoring the source of noise. Noise levels will be monitored using a sound level meter or an octave band analyzer at the site perimeter. An octave land analyzer measures noise at 8 different frequencies from 62.5 hertz to 8,000 hertz. Monitoring may be conducted closer to residential areas or businesses when needed to further assess sound level effects.

Noise level monitoring will guide the actions required to comply with the ordinance.

- If the noise ordinance is not exceeded, operations will continue with reporting to the EPA and USACE.
- If the noise ordinance is exceeded and it can be easily and immediately controlled, or if a project related complaint is received:
 - The event and/or complaint will be investigated.
 - Appropriate steps will be taken to resolve the complaint and/or event.
 - Follow up with the person who made the complaint.
 - Follow up reporting to the EPA and USACE.
- If the noise ordinance is exceeded, and it cannot be easily or immediately controlled, or if frequent/recurrent complaints are received:
 - The event and/or complaint will be investigated.
 - Additional monitoring will be performed as needed.
 - An action plan will be developed and implemented.
 - Follow up with the person who made the complaint.
 - EPA and USACE will be notified within 24 hours of discovery, and a detailed report prepared.

EPA and the USACE will evaluate the methods and frequency of the monitoring as the project proceeds and will consider any necessary changes.

Some examples of control techniques, which may be implemented, include:

- Reducing the number of operating equipment.
- Installation of noise suppression barriers.
- All mufflers and noise reducing equipment will be maintained in proper operating condition
- All equipment to be shut down when not in use.
- Equipment with backup alarms may be equipped with either self-adjusting ambientsensitive backup alarms or manually adjusted alarms. The ambient sensitive alarms will automatically adjust to a maximum of 5 dBA over the surrounding background noise levels. The manually adjusted alarms will be at the lowest setting required to be audible above the surrounding noise.

7.0 Compliance with Lighting Standard

Night work is not anticipated for the project. However, if artificial illumination is required at night the following will be used to control nuisance light.

Lighting will be directed toward work areas and away from neighboring properties. Measures that will be used to minimize impacts from light include proper positioning of lights, beam direction, and shielding.

Light level monitoring will guide the actions required to comply with the standard:

- If the lighting standard is not exceeded, operations will continue with regular reporting to the EPA and USACE.
- If lighting levels are temporarily exceeded and they can be easily and immediately, or if a project related complaint is received:
 - The event and/or complaint will be investigated.
 - Appropriate steps will be taken to resolve the complaint and/or event.
 - Follow up with the person who made the complaint.
 - Follow up reporting to the EPA and USACE.
- If the lighting violation cannot be easily or immediately controlled, or if frequent/recurrent complaints are received:
 - The event and/or complaint will be investigated.
 - Additional monitoring will be performed.
 - Action plan will be developed and implemented.
 - Follow up with person who made the complaint.
 - EPA and the USACE will be notified within 24 hours and a detailed report prepared.

The EPA and USACE will evaluate the methods and frequency of the monitoring as the project proceeds and will consider any appropriate changes.

Comments Matrix – Excavation and Material Handling Plan (Transmittal No. 02310-14) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc. Reviewer – ARCADIS-US, Inc.

			Reviewer – ARCADIS-US, Inc.	
Reviewer Comment No	Page /Para	Section	Comment	Response
1	2	Excavation	The third paragraph references hay bales, which were removed from the Soil Erosion and Sediment Control Plan. Please modify this plan accordingly.	Upon conversation with the Freehold Soil Conservation District, hay bales can be utilized. Suggest leaving hay bales in the plan as an alternative resource.
2	3	Excavation	The second paragraph indicates a draft tabular site fill balance sheet is provided at the end of the plan, however it is not. Please provide this.	This statement was a carry- over from the previous phase and has been deleted from the text.
3	NA	General	Specification Section 02310, Paragraph 1.9 states "adverse conditions may be encountered during excavation operations and provisions should be made for such events." Please include the required provisions.	We believe Section III Surface Water Control addresses the adverse conditions. No changes made to the plan.

Excavation and Material Handling Plan Rev 1

Cornell Dubilier Superfund Site
OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

July 2012

I. Introduction

The purpose of the Excavation and Materials Handling Plan is to present the methods and procedures for excavation of contaminated soil, procedures for temporary support systems; and methods for backfilling, compacting, and grading. If encountered, Sevenson will be responsible for obtaining any and all permits necessary for excavation, removal of Underground Storage Tanks (USTs), and excavation around underground utilities and as otherwise to complete the work in accordance with Federal, State and local regulatory requirements.

II. Excavation

Sevenson will, as a minimum, excavate in the areas and depths of the excavation as indicated on the Contract Drawings or as directed by the Contracting Officer

The project site will be divided into 30-foot square grids, delineated by survey coordinates throughout the areas to be excavated. Additional grids can be added to the layout in the event the contaminated areas increase beyond the limits shown on the drawings. Each grid represents approximately 33.33 cubic yards of material in one-foot vertical increments (a 3 foot excavation would equal 100cy's, etc.). Sevenson will limit the open excavation areas to control any potential dust emissions. Grids will be excavated to the depth indicated on the contract drawings or as directed by the Contracting Officer. No additional or over excavation of material will be performed unless authorized by the USACE.

The drawings indicate three clusters of properties to be remediated. The excavation will be sequenced so that work will be performed by cluster and not individual property (although work will be reported by property). Sevenson anticipates collecting waste characterization samples on a particular property prior to the onset of excavation activities so that the excavated material can be direct loaded and shipped without having to wait for sample results. Once all the controls measures (surveys, soil erosion, fencing, CRZ's, air monitoring, etc.) on the property to be remediated have been performed and installed, excavation will commence. Excavation will be accomplished by use of a small excavator (Komatsu PC 80 or equal), excavating the soils to the depths indicated. If necessary, a small bulldozer (Komatsu D-37or equal) will push contaminated material to a loading stockpile area. Intermodal or roll-off trucks will be stationed at the curb line and will be direct loaded by an excavator from the stockpile generated by the excavation activities.

Work will be initiated at the rear of the property and proceed to the front towards the curb line. The existing post excavation data generated by the engineer determines the depth of excavation and no additional post excavation sampling will be performed. Upon completion of the excavation to the lines and grades indicated a survey will be performed to ensure that excavation elevations have been achieved. Once backfill operation have commenced, excavation activities will be started at the next cluster of properties to be remediated. Waste characterization sampling and analysis will be performed in accordance with Sevenson's Sampling and Analysis Plan (SAP).

Sevenson's Soil Erosion and Sediment Control Plan will be enforced during all excavation activities.

Soil erosion and sediment control measures will be implemented during excavation activities. Control measures include the installation of silt fences, hay bales and geotextile, as applicable. Spraying soils with a water mist, utilizing water obtained from local fire hydrants, will control dust. A water truck will be utilized to keep dust off of haul roads and as an additional source of water for excavation locations.

Sevenson will protect existing trees, shrubs, facilities, structures, etc., by use of temporary orange safety fencing, flagging, plywood or other means, as required.

All items having any apparent historical or archaeological interest that is discovered in the course of any construction or excavation activities will be carefully preserved. Sevenson will leave the archaeological find undisturbed and will immediately report the find to the USACE so that the proper authorities may be notified. Historical or archaeological finds that might require work stoppages are not anticipated to occur during construction. Sevenson will decontaminate contaminated finds prior to removal from the site.

Organic materials including stumps, roots, railroad ties, and debris encountered during excavation will be considered grubbed material and will be handled, stored and disposed of as contaminated material.

Open excavations will be barricaded, fenced, or flagged to delineate this hazard.

The contaminated material will be excavated by a track backhoe. Polyethylene will be utilized to cover the sidewalls of the vehicle to be loaded to prevent contamination coming into contact with the exterior sidewalls of the vehicle. Polyethylene will also be place on

the ground where the truck is being loaded to prevent the ground surface coming into contact with contaminated material. If there are signs of contamination on the truck, the truck will be broom swept prior to moving to the scale for weighing. Alternately, Sevenson may opt to use a decontamination station at the egress of the exclusion zone to decontaminate vehicles thus preventing contamination leaving the zone. An intermodal or roll-off truck (truck) will be placed in close proximity to the loading stockpile, on the polyethylene, and the backhoe will load the contaminated material directly into the truck. The backhoe operator will use caution while loading the vehicle to prevent the vehicle becoming contaminated. Sevenson will not excavate or load material in severe rain. Additionally, no material will be excavated in areas where water is standing. Once the truck is loaded, the truck will be staged on Borough property until weighed, manifested and released for shipping. Trucks will tarped at the loading area prior to proceeding to the staging area. No vehicle will be shipped from the site that has free liquids in the container. Once the vehicle is weighed and covered/tarped, it will be transported to the disposal facility.

Surface surveying will be performed once the remedial excavation depths have been achieved. As previously mentioned, the site will be dived into 30-foot grids. Post excavation sampling and analysis will not be performed as the engineer had previously performed this function. A draft of this sheet is presented at the end of this plan. Additionally, Sevenson will utilize a grid system so that excavation and backfill areas can be tracked as the work progresses.

Sevenson anticipates in-sitsu sampling of the properties soil material for waste characterization at a minimum rate of one sample for every 250 tons or as required by the disposal facility. Analytical results will be submitted to and reviewed with the USACE prior to shipping the material off-site. Sampling and analysis will be performed in accordance with Sevenson's SAP.

At the completion of excavation and backfilling activities in the Exclusion Zone, Sevenson will remove any sediment tracked into the CRZ and dispose of it as contaminated material.

III. Surface Water Control

Sevenson will install berms, swales, and other measures necessary to prevent surface water from entering and exiting excavations. Surface water will be directed away from excavation and construction sites so as to prevent erosion and to prevent surface water run

on from becoming contaminated by accumulating in excavations. All diverted water will be directed to existing drain ways and storm sewer systems so as to not flood adjacent structures or properties. Backfill surfaces will be protected to prevent erosion and sloughing. Excavations will be performed so that the site and the surrounding areas at the site will be drained.

IV. Existing Utilities

Sevenson will contact the New Jersey One Call System (1-800-272-1000), Public utilities, New Jersey American Water (NJA), and the Borough of South Plainfield, and other local utility authorities to mark out underground utilities prior to performing any excavation activities. The locations of these lines are approximate on the Contract Drawings and will be field-verified by the utility authorities. Prior to any excavation work, utility clearances will be documented with a completed Field Safety Checklist.

Sevenson will mark out on-site utilities, to prevent damaging, or disturbing utilities during construction. During excavation activities, barricades, fencing, or flagging will be utilized to delineate the areas of underground utilities so that heavy machinery does not disturb the utility. Backfilling will be performed by spreading the material over the utility with a small bulldozer, avoiding running on top of the utility. A laborer will be stationed at the excavation and backfill locations to ensure the machinery does not damage the utility.

Utilities such as telephone poles, water pipes, gas pipes, sewer lines, property survey monuments, and USTs that are encountered during excavation may require temporary structural support. Physical removal of utilities will be coordinated with and performed by local utility authorities, as required.

V. Underground Storage Tanks

If a UST is encountered during excavation, Sevenson will immediately notify the USACE.

USTs determined to be leaking or in poor condition will be removed and disposed of in accordance with an approved Underground Storage Tank Removal and Closure Plan. Heating oil, sediment, and associated piping will be removed from USTs to prevent any accidental releases. Sevenson will obtain a permit from the Local Fire Department for UST removal.

Contaminated underground utilities encountered during excavation will be decontaminated using a steel wire or stiff bristled brush to remove any fixed material from the utility.

VI. Decontamination of Subsurface Structures

Upon the completion of excavations where utilities or foundations are exposed the surface will be decontaminated prior to backfilling. Sevenson will remove all attached soil material and debris from the structures using trowels, scrapers, wire brushes, vacuuming, or other methods approved by the USACE.

VII. Preparation of Ground Surface for Fill

After contaminated material excavation has been completed, and prior to placement of fill material, the exposed surface of the excavations will be examined to determine the presence of ruts, disturbed ground, wet spots, soft areas, organic matter, or other features undesirable in the sub-grade. Undesirable features will be removed and corrected before placing fill material.

Fill material will be moisture conditioned, as required, to obtain the specified moisture content and density for compaction.

Compaction over underground utilities will be performed by hand tamping techniques.

VIII. Backfilling

Backfill material will be obtained from an off-site source. Prior to backfill being brought to the site, the material will be sampled and analyzed in accordance with the specifications to ensure the material complies with the backfill requirements prior to being utilized for backfill on site. Sevenson will coordinate the delivery of off site backfill material to limit stockpiling the material. Backfill will not be placed within excavations without the notification or approval of the USACE.

Due to the small size of some of the clusters Sevenson may be required to stockpile clean fill materials on the Borough's property which is located away from the remedial

properties. Stockpiles management will consist of preparing areas so that earthen berms encompass the stockpiles to prevent water running into the stockpiled material. Stockpiles will be covered daily, using 6 mil polyethylene, held down with sand bags. Sevenson will utilize the methods described in the Soil Erosion and Sediment Control Plan to manage the stockpiles.

Stockpiles will be kept to a minimum as agreed upon by the USACE and USEPA.

Frozen materials will not be placed in the excavations, nor will fill be placed upon frozen material. All such materials will be removed from the excavations prior to backfilling.

Scrap metal, wood, utilities, pipes, concrete, asphalt, or any other deleterious material will not be used as backfill.

Backfilling will not commence until the excavation has been approved, underground utilities systems have been inspected, tested, and approved, forms removed, and the excavation cleaned of trash and debris.

Backfill will be placed in eight- inch (8") loose lifts. A track bulldozer or utility backhoe will spread fill material. Fill material will be compacted by vibratory drum rollers or double drum walk behind rollers. Heavy equipment will not be used within five feet (5') of an existing underground utility or foundation.

Fill material will be backfilled to the lines and grades shown on the Contract Drawings. Backfilling will not commence until excavations depths have been achieved, all temporary supports have been removed, and approval has been received from the USACE. Backfill will not be placed on snow, ice, standing water, or frozen ground surfaces. Backfill will not be placed when the temperature is below 32 F, unless approval is received from the USCAE.

Prior to compacting, each fill layer will be plowed, tilled, or broken up; moistened or aerated; and thoroughly mixed, to obtain the moisture content for compaction.

Backfill areas, determined to be inadequately compacted, will be recompacted and retested until the specified criteria have been met.

The following minimum values, expressed as a maximum dry density in accordance with ASTM D 1557, will be used for compaction of clean fill: 90%

All disturbed areas will be graded to provide a smooth and uniform condition/grade.

Comments Matrix – Dust Control Plan (Transmittal No 01351-3) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc. Reviewer – ARCADIS-US. Inc.

1			Reviewel – ARCADIS-05, IIIC.	<u> </u>
Reviewer	Page	Section	Comment	Response
Comment	/Para			
No				
1	6	Excavation	The last bullet of this section ends with "and". Is a bullet missing, or should the "and" be at the end of the preceding	The last bullet has been corrected with a period placed there.
			bullet?	
2	NA	General	The plan indicates in various places that water suppression will	The dust control is for the open excavations. Water will be
			be utilized for dust control. How will resulting runoff water be	applied so that the excavation is not saturated creating a runoff
-			controlled to prevent infiltration into open excavations?	situation. NO revision to the plan made.

Dust Control Plan

Rev 1

Cornell Dubilier Superfund Site OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

July 2012

I. Introduction

This Dust Control Plan (DCP) has been prepared by Sevenson Environmental Services, Inc. (Sevenson) to address the control of fugitive and airborne dust emissions from the Cornell Dubilier Electronics Superfund Site (the Site) located in South Plainfield, New Jersey. This Plan complies with the State of New Jersey rules for controlling fugitive dust emissions as specified in Contract Specification Section 01351. The primary objective of this plan is to formulate a strategy for controlling, to the greatest extent practicable, fugitive or airborne dust emissions at the Site. This will be accomplished by identifying specific sources and activities that have the highest potential to produce or generate fugitive or airborne dust emissions. This plan describes the engineering controls necessary to minimize and control dust emissions from those sources and activities. This plan is prepared to address the control of fugitive dust emissions at the Site that are a result of current remediation activities. As necessary, the scope of this plan will be revised to reflect changes in Sevenson's dust control strategy as site conditions or activities may change in the future.

The Cornell Dubilier Electronics Superfund Site (Site), Operable Unit 01 (OU-1), is the remediation of residential properties located in the Borough of South Plainfield, Middlesex County, New Jersey. Work under OU-1 includes excavating soils and debris, transportation of wastes and offsite disposal of wastes; restoration with backfill and placement of topsoil and sod; and other activities necessary for the complete and proper remediation of the site.

As a precautionary and control measure for this project, this Dust Control Plan will be used as a standard operating procedure. This plan will be used:

- To eliminate origins of dust from the residential sites;
- To identify potential dust migration pathways;
- To monitor for dust produced by site activities; and

• To implement corrective actions as the need arises.

This plan is not intended to address all situations as they may occur, however, the plan has attempted to include all foreseeable situations and planned work areas/activity tasks. In addition, the plan provides an approach to those situations that cannot be anticipated at the time of its preparation. The plan is prepared and submitted with the understanding that it can be modified to accommodate actual site conditions as they arise. This plan will be implemented in conjunction with the project Health and Safety Plan.

II. POTENTIAL FUGITIVE DUST SOURCES

The materials of concern, with respect to fugitive dust emissions at the Site, are PCB's, VOC's and metals. Sevenson has identified the following project work areas/tasks as potential sources of fugitive dust emissions. They are as follows:

MOBILIZATION

During site mobilization, the following tasks will be performed, which have potential for producing dust:

- Grading and placing stone to prepare the support area;
- Delivery of equipment and materials. Trucks carrying debris shall have a double locking mechanism on the tailgates.

SITE PREPARATION

The following site preparation activities may generate dust:

Installation of erosion and sediment controls.

UTILITY DISCONNECTS/REMOVALS

- Utility disconnects and removals (gas mains, water mains, sanitary and storm drains) may require the following excavations/activities with the potential to produce dust;
- Sidewalk excavation and removal;
- Pavement-saw-cutting-and-excavation;
- Utility trench excavation and backfill; and
- Sidewalk and street grading.

CONTAMINATED SOIL EXCAVATION

Excavation activities are likely to generate dust from the following:

- Asphalt saw cutting and removal;
- Soil excavation and loading; and
- Soil transportation.

WORK AREA RESTORATION AND DEMOBILIZATION

After remedial activities are completed, the following operations will take place:

- Backfill to existing lines and grades;
- Pavement restoration; and
- Removal of equipment and temporary facilities.

III. DUST CONTROL AND MITIGATION PROCEDURES

The following methods will be used to prevent conditions conducive to dust generation and suppress dust should it occur. The methods below are presented in accordance with project functions or specific work areas.

WORKER TRAINING AND PRACTICES

- Educate, train and reinforce workers at daily safety meetings of the necessity to perform their tasks in a manner that does not generate dust;
- Stress the importance and reinforce the need to keep assigned work areas clean, neat, and dust-source free as a standard operational procedure during all work activities on an ongoing basis;
- Maintain dust suppression in assigned work areas; and
- Ensure that workers notify supervisors of dusty conditions whenever they are visually observed and request dust suppression support if needed.

MOBILIZATION

- Insure trucks delivering materials (fill, topsoil, etc.) are covered/tarped;
- Maintain access roads and regrade as required;
- Establish speed limits suitable to access roads to minimize fugitive dust;
- Routinely apply water to cover high traffic areas (haul roads and site access roads) with water spray from water truck that is located on-site or local hoses. This procedure will help prevent soil from accumulating on surfaces or from drying. Broom sweep asphalt roads after application of water. Sevenson will install berms, swales, and other measures necessary to prevent water run-offs from entering and exiting excavations. Water will be directed away from excavation and construction sites so as to prevent erosion and undermining of foundations and to prevent surface water run on from becoming contaminated by accumulating in excavations. All diverted water will be directed to existing drain ways and storm sewer systems so as to not flood adjacent structures or properties.

SITE PREPARATION

Routinely apply water to the excavation area to dampen excavated materials. Care
 will be utilized to not saturate the material; and

• Routinely apply water to access roads, as necessary, with a water spray. Broom sweep asphalt road areas where water has been applied.

UTILITY DISCONNECTS AND REMOVALS

- Routinely apply water to the excavation to dampen excavated materials;
- Backfill trenches with clean fill material.

PERSONNEL CONTAMINANT REDUCTION ZONE (CRZ)

- Utilize proper decontamination procedures;
- Properly remove and containerize all PPE;
- Remove accumulated solids and debris within the CRZ;
- Maintain boot wash basins; and
- Perform daily housekeeping of the CRZ.

EXCAVATION

- Apply water mist/fog during excavating to minimize dust emissions;
- Routinely apply water to access roads;
- Establish speed limits to access roads to minimize fugitive dust;
- Routinely apply water to cover high traffic areas with water spray from water truck or local hoses to prevent clean soils from accumulating and drying;
- Place polyethylene on the ground surface where trucks are loaded;
- Material loaded into trucks should not be dropped from heights above the truck body;
- Broom sweep truck tires used to haul material off site prior to leaving the site.
- Immediately clean excavated material spilled on the ground surface and sweep the road as required;
- Routinely remove any material that accumulates around equipment and work areas;

- Cover stockpiled materials with polyethylene at the end of each workday as storage areas become full or during periods of high winds; and
- Cover (tarp) loaded trucks.

WORK AREA RESTORATION AND DEMOBILIZATION

- Routinely apply water to the utility excavation to dampen excavated materials;
- Routinely apply water to access roads with a water spray. Broom sweep asphalt road areas where water has been applied;
- Establish speed limits to minimize fugitive dust;
- Ensure delivery trucks (delivering backfill materials, etc.) are covered; and
- Routinely apply water to the backfill materials for moisture control.

HEAVY EQUIPMENT DECONTAMINATION

- Remove gross contamination with brooms, shovels, scrapers and brushes;
- Wash with spray washers, if needed;
- Rinse with power-washer or steam-jenny if brooming techniques fail; and
- Transfer accumulated solids to stockpile/disposal area.

IV. BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMPs) will also be followed to help minimize and control dust emissions at the Site to the greatest extent possible:

Roads—All onsite traffic will be restricted to specific designated roads. Off-road travel will only be authorized on a case-by-case basis. Traffic speed will also be restricted to an appropriate level on all designated roads. All designated roads will be considered as high potential dust source areas, and as such, will be a priority for dust controls utilizing watering.

Hours of Operation—This Plan will be in effect during all hours of operation at the Site. During non-business hours, there will be no activities generating dust; therefore, dust control actions will restricted to hours of operation only. However, as a best management practice, if high winds are evident at the close of a business day (or immediately prior to a weekend, holiday, etc.), site

personnel should evaluate vulnerable areas and implement controls as appropriate to minimize off-hours emissions.

Use of Chemical Suppressants—Use of various chemical dust suppressants (e.g., surfactants, salt-based soil conditioners, etc.) shall be done in accordance with the recommended end-uses for those products. Site personnel shall not exceed the manufacturer recommended application rates. Material Safety Data Sheets (MSDSs) for all dust suppressant materials used at the Site shall be reviewed and approved by USACE. Prior to application, site personnel shall determine and evaluate if the use of the dust suppressant could interfere with other site monitoring activities, or cause other harm to the environment (e.g., runoff into critical habitat for threatened or endangered fish). The MSDSs for dust suppressants will be kept on-site

V. MONITORING AND CORRECTIVE ACTION

Sevenson will implement all dust-monitoring/correction programs. Daily site safety meetings will reinforce the need for all workers to be cognizant and responsive to conditions or activities that generate visible dust. The area foreman and supervisors will be notified immediately if dust is observed or if conditions exist where dust could be a problem. SES will provide real-time monitoring for dust using a total airborne dust monitor (MIE-Ram-1 or equivalent) with data logging capabilities within 10 feet (downwind) at appropriate areas adjacent to excavation, soil stockpiling, screening, and pretreatment, fill placement and compaction. All samplers will be programmed for continuous operation during each work shift with multiple sampling events at each location.

The initial step of the program is to visually observe the infraction.

The sequential corrective action task list for the elimination of fugitive dust at this site is presented below:

- 1. Reduce the pace of, or cease, dust producing activity until the problem is corrected.
- Notify the area supervisor of dust conditions and implement dust suppression procedures.

- 3. Remove accumulated dirt and soil from problematic areas, and/or cover, enclose, or isolate dust-generating areas/surfaces to shield them from wind, sunlight or heat sources.
- 4. Increase frequency, volume, and/or coverage of water misting, sprays, and foggers to prevent soil and dirt from drying.
- 5. Provide additional dust suppression systems and operating personnel during the task duration.
- 6. Modify operating procedures and methods to eliminate problematic conditions.
- 7. Increase level of worker awareness and instruct them on implementation of any new or modified operating procedures.
- 8. Report and document all procedural modifications and results.
- 9. Perform routine audits of dust suppression methods and work areas for dust sources.

The action level for Dust in air (total above background) is 2.5 mg per cubic meter.

Contracting Officer will be notified and an upgrade to Level C for the workers will be implemented until the dust level is suppressed. Sevenson's Project Manager and Site Safety Officer have the responsibility and authority to implement this Dust Control Plan.

WASTE MANAGEMENT, TRANSPORTATION AND DISPOSAL PLAN Rev 1

CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE SOUTH PLAINFIELD, NEW JERSEY

OU-1 PROPERTY REMEDIATION

July 2012 CONTRACT NO. W912DQ-10-D-3006 Delivery Order 0002

Prepared By:



Prepared for:



U.S. ARMY CORPS OF ENGINEERS KANSAS CITY DISTRICT OFFICE

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LIST OF ACRONYMS

ARAR	Applicable, Relevant and Appropriate Regulations
CFR	Code of Federal Regulations
DO	Delivery Order
IDW	Investigation Derived Waste
QAPP	Quality Assurance Project Plan
PPM	Part Per Million
	Personal Protective Equipment
	Polychlorinated Biphenyls
	Pre-placed Remedial Action Contract
RCRA	Resource Conservation and Recovery Act
	Sampling and Analysis Plan
	Sevenson Environmental Services, Inc.
	Site Safety and Health Plan
	Toxic Substance Control Act
	Unites States Army Corps of Engineers
	United States Department of Transportation
	Volatile Organic Compound
WMT&DP	Waste Management, Transportation and Disposal Plan

1 INTRODUCTION

The United States Army Corps of Engineers (USACE) Kansas City District has been designated to remediate the contaminated soils located at various OU-1 Properties(Offsite Properties) at the Cornell Dubilier Electronics Superfund Site (the Site), located in South Plainfield, New Jersey. Sevenson Environmental Services, Inc. (Sevenson), under its Pre-placed Remedial Action Contract (PRAC) No. W912DQ-10-D-3006, has been designated the Remedial Action Contractor for the Site. The primary objective of the remediation effort is the timely and effective cleanup of these Offsite Properties in accordance with the U.S. Army Corps of Engineers Contract Delivery Order (DO) 0002 issued April 24, 2012, for the Site. This DO provides for the excavation and off-site disposal of materials from within predetermined areas of the designated Offsite Properties

The remedial activities to be performed at the Offsite Properties (see Figure 1-1) areas of the Site will result in the generation of various types of demolition materials and remediation wastes. This Waste Management, Transportation and Disposal Plan (WMT&DP) identifies the procedures and guidelines that will govern material and waste handling operations during the remedial action activities.

Specifically, this WMT&DP describes the classifications of materials and wastes that are anticipated to result from remedial activities; the regulatory requirements for management of such materials and wastes; the procedures to be followed during the remedial action activities for material and waste management, transportation, and disposal; and the applicable notification, documentation, and reporting requirements associated with the material and waste management activities. If additional DO's are issued for the Site, this WMT&D Plan will be updated as necessary.

2 MATERIAL AND WASTE SOURCES AND CLASSIFICATIONS

This section describes the sources and classifications of the materials and wastes that may be generated during the remedial activities to be performed at the Site.

2.1 SOURCES OF MATERIALS AND WASTES

Implementation of the remedial action activities at the Site will result in the generation of materials and wastes which will require appropriate on-site and off-site management. These materials and wastes will be generated during excavation and removal of Offsite Properties' soils at the Site, as well as during the execution of associated support operations (i.e., equipment decontamination, etc.). The anticipated materials and wastes to be generated from the implementation of the remedial action activities include, but are not limited to:

<u>Source</u>	Potential Materials and Wastes		
Soil Excavation Activities	Construction Debris (both contaminated and non-contaminated)		
•	Contaminated Soil directly associated with removal activities		
•	Water from Excavation Areas and Surface Run-off		
•	Spent Personal Protective Equipment (PPE), Debris, Disposable Equipment and Sampling Debris		
Decontamination Activities	Contaminated Sediments and Residues		
•	Decontamination Waters		
•	Spent PPE, Debris, Disposable Equipment		
Other	Common trash and garbage (non-contaminated)		
•	Sanitary Wastewater		
•	Waste Oil (from filters, equipment maintenance)		

2.2 MATERIAL AND WASTE CLASSIFICATIONS

Previous Site investigations and samplings have been conducted under separate contracts to identify the contaminant of concern, polychlorinated biphenyls (PCB), and to delineate areas and extent of excavation at the Offsite Properties Excavation and removal of soils will be as specified in Sevenson's current contract and at the direction of the US EPA/USACE.

Identification of the various potential classifications of waste materials for offsite disposal purposes is presented in subsequent sections. A matrix of potential disposal classifications and designated disposal facilities is included in Section 2.2.6.

2.2.1 Non-RCRA Hazardous Debris and Soils

Implementation of the remedial action activities at the Site will involve handling waste materials that are not subject to the Resource Conservation and Recovery Act (RCRA) hazardous waste or Toxic Substance Control Act (TSCA) regulations. A solid waste may be a RCRA hazardous waste if it is specifically listed as a RCRA Hazardous Waste, or if it exhibits any of the following characteristics of hazardous waste: ignitability, corrosivity, reactivity, and/or toxicity. The regulatory definitions for each of these characteristics are contained in 40 Code of Federal Regulations (CFR) Part 261.21 through 261.24. A solid waste may be a TSCA waste if it contains PCB at concentration of greater than 50 parts per million (ppm) as defined in 40 CFR Part 761. Any wastes identified as being either RCRA Listed or Characteristic Hazardous Wastes, or as TSCA regulated, must be managed in accordance with all applicable RCRA and/or TSCA hazardous waste management regulations.

Additional characterization sampling will be conducted based on previous analytical results and the types and volumes of materials generated for disposal to determine if they exceed regulatory limits for management as a hazardous waste. This sampling is discussed in the Site-specific Sampling and Analysis Plan (SAP), submitted under separate cover.

2.2.2 RCRA Hazardous Debris and Soils

It is not anticipated that any RCRA listed or Characteristic wastes are present at the Offsite Properties. Discussion of these wastes is included for informational purposes should any of these wastes be encountered during this removal phase.

Characteristic Hazardous Materials and Waste

RCRA characteristic hazardous wastes are materials that exhibit ignitability (Hazardous Waste Code D001), corrosivity (Hazardous Waste Code D002), reactivity (Hazardous Waste Code D003), and/or one or more of the toxicity characteristics (Hazardous Waste Codes D004 through D043). The hazardous waste characteristics are identified through laboratory analysis of waste materials or based on the waste generator's knowledge of the process generating the waste.

Materials encountered during the remedial action activities will be sampled and analyzed to determine if they are RCRA Characteristic Hazardous Wastes. It is anticipated that one (1) composite sample shall be obtained representative of each Offsite Property for waste classification purposes. Details of sample rational, collection, handling, etc., may be found in the Site-specific QAPP, submitted under separate cover.

Spent PPE, equipment, and materials that are contaminated with RCRA Hazardous Waste may themselves be classified as RCRA Hazardous Wastes based on the "Derived From" Rule. If RCRA Hazardous Wastes are identified at the Site, spent PPE generated during the removal and handling of these materials will be segregated from the other PPE and disposed along with the RCRA hazardous waste itself.

RCRA hazardous wastes, if encountered, will be disposed of at a RCRA hazardous (Subtitle C) permitted disposal facility.

2.2.3 PCB (TSCA) Hazardous Debris and Soil

Site debris or soils which exhibit levels of PCB contamination at greater than 50 ppm will be managed as a TSCA regulated waste for offsite disposal purposes. Review of data from the Site indicates that elevated levels of PCB may be present in Site wastes. Materials encountered during the remedial action activities will be sampled and analyzed to determine if they are TSCA regulated hazardous wastes. TSCA hazardous wastes will be disposed of at a TSCA hazardous (Subtitle C) permitted disposal facility.

2.2.4 Other Materials and Wastes

In addition to the waste classification identified above, remedial action activities may also result in the generation of waste materials that are not classified as RCRA or TSCA hazardous wastes but may contain hazardous substances requiring special management procedures (Regulated Wastes). Such Regulated Wastes may include the following:

- <u>Non-Hazardous Wastewaters</u> Wastewaters generated during project activities may contain contaminants that will be stored in temporary storage tanks onsite. Each tank of water will be sampled to determine possible hazardous waste classification prior to offsite disposal.
- <u>Trash and Rubbish</u> This material includes spent packaging materials, equipment, and general garbage and trash that has not been impacted by contaminated materials at the Site. Trash and rubbish will be stored on-site in appropriate containers and will be disposed of at a licensed off-site municipal waste facility. This material will be transported by a licensed local municipal waste hauler.

2.5.6 Waste Classification and Offsite Disposal Matrix

A summary of anticipated disposal facilities, by Contract Bid Item Number and Disposal Classification, is as follows:

Bid Item	Disposal Classification	Disposal Facility Type	Disposal Facility Location
008	Non-RCRA/Non-TSCA waste	Non-hazardous landfill	Primary Gloucester County Improvement Authority – Sweedsboro, NJ Alternate Deleware County Solid Waste Autority – Boyertown, Pa
009	TSCA > 50 ppm PCB	TSCA direct landfill	Heritage Environmental – Roachdale, In

3 REGULATORY REQUIREMENTS

Materials and wastes generated during the remedial action activities at the Site will be managed in accordance with the applicable local, State, and Federal regulations for each particular classification. In addition, all waste management activities will be performed in a manner that is protective of human health, safety, and the environment. The following sections describe the regulatory requirements for the wastes identified in Section 2 of this WMT&DP.

The anticipated transporters are:

RCRA/TSCA Hazardous Transporters

Transporter: R&B Debris/Greener Recycling US EPA ID Number: NJR000066803 Facility Location: Hainesport, NJ

Name of Responsible Contact: Ron Bridges

Telephone Number: (856) 264-1840

Unit of Measure for Costing Purposes: Per Ton

Transporter: Hainesport Industrial Railroad

US EPA ID Number: N/A

Facility Location: Hainesport, NJ

Name of Responsible Contact: Ron Bridges

Telephone Number: (856) 264-1840

Unit of Measure for Costing Purposes: Per Ton

Non-RCRA/Non-TSCA Hazardous Transporters

Transporter: R&B Debris/Greener Recycling

US EPA ID Number: NJR000066803 Facility Location: Hainesport, NJ

Name of Responsible Contact: Ron Bridges

Telephone Number: (856) 264-1840

Unit of Measure for Costing Purposes: Per Ton

The anticipated offsite disposal facilities are:

Non-RCRA/Non-TSCA Hazardous Disposal Facility

Facility Name: Gloucester County Improvement Authority (GCIA)

New Jersey ID Number: 0816000386 Facility Location: Swedesboro, NJ

Name of Responsible Contact: Kim Faustino

Telephone Number: (856) 478-6045

Unit of Measure for Costing Purposes: Per Ton

Facility Name: Delaware County Solid Waste Authority (Rolling Hills Landfill)

Pennsylvania ID Number: 100345 Facility Location: Boyertown, Pa

Name of Responsible Contact: David Moser

Telephone Number: (610) 367-2373

Unit of Measure for Costing Purposes: Per Ton

RCRA/TSCA Hazardous Disposal Facilities

Facility Name: Heritage Environmental Services

US EPA ID Number: IND980503890 Facility Location: Roachdale, In

Name of Responsible Contact: Brian Walker

Telephone Number: (756) 435-2704

Unit of Measure for Costing Purposes: Per Ton

3.1 NON-RCRA/NON-TSCA SOILS

On-Site Management Requirements

Management of non-RCRA or non-TSCA hazardous wastes involves removal of pre-designated soils (and any associated debris) from the Offsite Properties areas of the Site. Soils have been previously tested, and additional samples for waste characterization purposes will be obtained per the Site-specific QAPP, submitted under separate cover. Wastes will either be placed into 20 to 24 cubic yard rolloff boxes for storage until transport offsite or transported to an on-site stockpile area. All wastes will be transported to their approved offsite disposal facility.

If needed, stockpiles will be covered with six mil polyethylene in a way to suppress dusting or blowing and to allow water runoff without contaminating the runoff water. Stockpiles will be kept to a minimum, typically under one hundred cubic yards and be constructed as specified in Contract Specification Section 02310 of the Specifications. Soil erosion control measures including silt fence, sand bags, etc. will be installed around stockpiles to prevent the migration of solids' material.

All material management activities will be performed in accordance with applicable local, State and Federal regulations for handling, labeling, and storage of non-RCRA hazardous materials.

Off-Site Transportation Requirements

Non-hazardous soil and debris material must be disposed of at a facility licensed/permitted to accept non-RCRA/non-TSCA hazardous materials. For the Site, it is anticipated that contaminated soils will be transported to a licensed/permitted Subtitle D disposal facility approved by the USACE listed in Section 2.5.6.

Off-Site Processing & Disposal Requirements

No offsite processing of Site debris and waste materials is anticipated. Each load of waste shipped will be accepted under the waste approval acceptance application (Non-hazardous Waste Certification Form) submitted to the disposal facility. All loads of waste will be managed by the landfill per their permit requirements by direct dumping and landfill.

3.2 TSCA HAZARDOUS SOILS

On-Site Management Requirements

Management of TSCA hazardous soils and debris involves removal of pre-designated soils (and any associated debris) from the Offsite Properties areas of the Site. Soils have been previously tested, and additional samples for waste characterization purposes will be obtained per the Site-specific QAPP, submitted under separate cover. Wastes will either be placed into 20 to 24 cubic yard rolloff boxes for

storage until transport offsite or transported to an on-site stockpile area. All wastes will be transported to their approved offsite disposal facility.

Stockpiles will be covered with six mil polyethylene in a way to suppress dusting or blowing and to allow water runoff without contaminating the runoff water. Stockpiles will be kept to a minimum, typically under one hundred cubic yards and be constructed as specified in Contract Specification Section 02310 of the Specifications. Soil erosion control measures including silt fence, sand bags, etc. will be installed around stockpiles to prevent the migration of contaminated material.

All material management activities will be performed in accordance with applicable local, State and Federal regulations for handling, labeling, and storage of TSCA hazardous materials.

Off-Site Transportation Requirements

TSCA hazardous debris and waste material must be disposed of at a facility licensed/permitted to accept TSCA hazardous materials. For the Site, it is anticipated that contaminated soils will be transported to a licensed/permitted Subtitle C disposal facility approved by the USACE listed in Section 2.5.6. All loads will be manifested with net payload weights in kilograms per 40 CFR 761.207.

Off-Site Processing & Disposal Requirements

TSCA hazardous debris and soils (PCB > 50 ppm) will be directly landfilled by the disposal facility. Each load of waste shipped will be accepted under the waste approval acceptance application (Waste Profile Form) submitted to the disposal facility.

3.3 OTHER MATERIALS AND WASTES

Wastes other than soils that are contaminated, but non-RCRA hazardous, and non-regulated will be handled and stored on-site in a manner that prevents releases to the surrounding environment and that will not interfere with on-site activities.

Disposal Options

The disposal options available for the various non-regulated wastes that may be encountered during performance of the work are presented below:

- Trash and Rubbish Trash and rubbish will be hauled by a local, licensed hauler to an appropriate municipal or industrial waste facility.
- Waters All waters generated during remedial activities will be temporarily stored onsite prior to characterization for offsite transport and disposal.
- Used oils Used oils will be stored onsite prior to transport offsite for recycling.

4 MATERIAL AND WASTE MANAGEMENT PROCEDURES

This section presents the specific guidelines and procedures that will be followed for the management of material and wastes handled during the remedial action activities at the Site. These procedures are generally applicable to the management of wastes after they have been removed/excavated. Specific procedures for material and waste excavation and removal are presented in the Excavation and Materials Handling Plan, submitted under separate cover. The procedures presented in this section are based on the project goals of minimizing threats to Site workers, human health, and the environment during all material and waste handling activities. Specific procedures and guidelines for handling, staging, storing, sampling, packaging, labeling, and transporting material and waste are presented in the following sections.

4.1 GENERAL

Material and waste handling activities will be performed in a manner that minimizes the threat of a release of potentially contaminated material to the environment and surrounding community, and protects worker health and safety. Care will be taken during operations and activities that will generate materials and wastes, such as demolition and excavation, to prevent releases of material, waste, and dust to the surrounding environment. All waste management disposal options are included in Section 2 of this WMT&D Plan.

4.2 MATERIAL AND WASTE HANDLING PRECAUTIONARY MEASURES

The following procedures may be implemented prior to or during remedial activities to ensure that there are no releases of material and/or waste to the environment and surrounding community, and to protect Site workers.

- Engineering controls such as water sprays may be used during activities that could potentially generate dust (i.e., excavation and loading) to prevent the spread of contaminants via wind dispersion.
- Plastic sheeting may be placed under and around transport units while they are being loaded.
 Any material that falls onto the plastic sheeting during loading will be collected and placed in the container.
- Site workers will wear PPE appropriate for the specific task being performed, in accordance with the Site Health and Safety Plan, submitted under separate cover. Spent PPE and contaminated disposable equipment and materials will be containerized and disposed of appropriately.
- Equipment used during construction activities in potentially contaminated areas will be properly decontaminated before moving through clean areas of the Site or leaving the Site.
- A "clean road" will be established to allow material and waste hauling vehicles to enter and exit
 the Site without coming into contact with contaminated media. This will prevent contaminated
 debris, soils or sediments from being "tracked" onto the public roadways. Vehicles will undergo
 decontamination (brooming, brushing or washing), as necessary, based on a visual screening
 process.

4.3 PRE-EXCAVATION SCREENING

Pre-excavation screening of materials will be conducted per the QAPP. Excavation at each Offsite Property is based upon the Site Drawings and footprints of contamination provided by USACE. Excavation limits for soils at each Offsite Property are established in the Site drawings. Additional excavations will be performed only as directed by US EPA/USACE.

4.4 MATERIAL AND WASTE HANDLING, STAGING, AND STORAGE

The procedures and guidelines that will be used for handling, staging, and storage of waste materials generated during the remedial activities at the Site are presented below.

As waste is generated or contaminated soils are excavated, they will be loaded into hauling vehicles for transport to the offsite landfill or transferred to the appropriate designated staging area or material preparation area (materials containing free liquid only) for further management. The Site Excavation and Materials Handling Plan identifies the locations of the designated staging areas.

Materials transported for offsite disposal must not contain any free liquids and must pass the paint filter test. Therefore, any materials that are saturated upon removal or excavation may be transferred to a designated temporary material preparation area prior to transfer to the loading area. The material preparation area will be equipped with a sump to allow for collection of waters. These waters will be transferred to the on-site holding tank for disposal and/or reuse. Sumps at the material preparation area and staging areas will be cleaned out, as necessary, to remove accumulated sediments. Cleaning of the sediment traps will be performed using hand tools and heavy equipment, as appropriate. Sediments removed from the sump will be solidified, as necessary, and disposed of along with soils.

All trucks, excluding those dedicated to the excavation areas of the site, will remain on the "contaminant-free" haul road within the Exclusion Zone. All vehicles leaving the Exclusion Zone will be visually inspected, and, if leaving the Site property, decontaminated prior to release per the SSHP.

All below-grade grubbed material (i.e. tree roots or piping) removed during excavation will be managed with the soils. The excavator will shake tree root masses or piping as they are removed to dislodge clumps of soil. To the greatest extent possible, all subsurface debris will be directly loaded into disposal transport vehicles with associated debris or soils. If necessary, large/oversize debris will be pulled to the side of the excavation prior to loading. As required, physical sizing of debris will be performed by Sevenson personnel before loading. Oversize concrete may also be removed to the stockpile area for further size reduction or removal of rebar or mesh. Debris will be sized to approximately 24 to 36 inch diameter size to meet landfill requirements.

In addition to Site soils and debris, all Investigation Derived Waste (IDW) and PPE, including discarded disposable Health and Safety sampling equipment and plastic sheeting, will be consolidated on a daily basis at the decontamination pad area at the Site. IDW/PPE will be placed in plastic bags on a daily basis prior to weekly consolidation into (55) gallon drums for storage. Once offsite transportation of waste commences, the (55) gallon drums will be emptied into loads of waste being shipped for disposal.

Besides IDW and PPE generated during project activities, other components (i.e. tools, brooms, etc.), debris or refuse might be generated by contact with contaminated soils. These secondary wastes will be disposed of along with Site soils. Planning, management and housekeeping practices will be employed that minimizes generation of secondary wastes. These management and housekeeping practices will include:

- Determine which tools or materials must be taken into designated contaminated areas and limit as practical.
- Identify and maintain designated tools or materials for use in contaminated areas.
- Prevent excessive amounts of materials (i.e. bags, rags, etc.) from entering designated areas.
- Segregate and maintain contaminated materials from non-contaminated sources.
- Reuse contaminated materials within designated areas, as possible.
- Separate compactable from non-compactable contaminated materials.

4.5 MATERIAL AND WASTE SAMPLING AND ANALYSIS

Sample analysis results for Full RCRA characterization and total PCB content analysis from the samples obtained by Sevenson during area characterization activities will be submitted to the disposal facility along with a completed waste profile to obtain disposal approval. The detailed procedures for sampling excavated materials are presented in the QAPP, submitted under separate cover.

Laboratory operations project organization and personnel responsibilities are provided in the laboratory's Quality Assurance Project Plan which can be made available for review by request.

4.6 MATERIAL AND WASTE PACKAGING

All material and waste scheduled for off-site transportation and disposal will be properly packaged in accordance with all applicable local, State and Federal regulations, including USDOT Hazardous Materials Regulations contained in 49 CFR Parts 171 through 180. Materials scheduled for shipment will be packaged in either end dump or tri-axle dump trailers.

The following minimum packaging requirements apply for materials to be shipped:

Bulk Packaging

- Bulk packaging (i.e. rolloff boxes or tri-axle trailers) must, at a minimum, meet the applicable requirements contained in 49 CFR 173.24, General Requirements for Packaging and Packages.
- Bulk packaging must be covered. The top must be completely enclosed with no opening along the sides or openings in the top.
- Bulk packaging must be prepared to prevent material from leaking out or water from leaking in.
 Shipments containing free water will not be accepted by the disposal facility.
- Bulk packaging must be clean. It must not have any waste materials, or other material which could be mistaken for waste material, on the outer surface.
- Each bulk container which requires marking will be properly marked in accordance with 49 CFR 172 Subpart D.

4.7 MATERIAL AND WASTE LABELING AND DATING

Material and waste containers and packages will be marked in accordance with applicable local, State and Federal requirements (49 CFR 172 Subpart D). In addition, a unique identification number will be assigned to each load of waste for disposal to allow for proper tracking of the material from the time of shipment through off-site disposal and receipt of a certificate of disposal (if applicable). This information will be recorded by on-site personnel on a Material and Waste Disposal Tracking Log (See Appendix A).

5 NOTIFICATIONS, DOCUMENTATION, AND REPORTING

The following sections present the procedures to be used for notifications, documentation, and reporting activities associated with management of excavated material during the remedial activities.

5.1 **NOTIFICATIONS**

Notifications of material and waste management activities at the Site will be made in accordance with the requirements of applicable local, State, and Federal requirements. In particular, notification of Off-Site Policy Certification per 40 CFR 300.440 will be made.

In the unlikely event that an incident occurs during transport, the Waste Transportation and Disposal Coordinator will notify the appropriate USACE representative as well as the required entities, as defined by USDOT requirements. The type of information that may be provided includes:

- Location and name of person making report.
- Name and address of carrier represented by person making the report.
- Telephone number where person can be reached.
- Date, time, and location of the hazardous materials incident.
- Extent of injuries, if any.
- Classification of materials involved.
- Type of incident and nature of hazardous materials, if any, involved.
- Whether or not a continuing danger to life exists.

DOCUMENTATION PROCEDURES 5.2

Various types of documentation will be required for material management activities associated with the remedial activities to be performed at the Site. Field activities that generate material and waste will be documented to ensure that material and waste are managed appropriately. Material and waste characterization activities will be documented to ensure that material and waste characterization data can be easily and clearly correlated to a particular Site area. Material and waste management activities will be closely documented to ensure that all materials and wastes are properly handled and disposed of.

Documentation of Field Activities 5.2.1

Field activities, if any, that generate material and waste will be properly documented in order to establish the origins of such material and waste for proper disposal. The party who containerizes the material or waste is responsible for the initial documentation associated with generation of material or waste. At a minimum, the following information will be recorded when material or waste is generated and containerized:

- The date of generation.
- A description of the material or waste.
- Any pertinent observations about the material or waste.
- The approximate quantity of material or waste.
- The type of storage container used for the material or waste.
- Where the material or waste shall be staged while awaiting characterization and disposal.

The containers and/or stockpiles used for on-site storage of material or waste will be appropriately dated and labeled to assist in proper tracking of material or waste. All stockpiling will be conducted in such a manner as to limit the possibility of the commingling of different waste types or hazardous waste classifications.

5.2.2 Documentation During Transportation and Disposal

Transportation and disposal activities will be documented using the Material and Waste Disposal Tracking Log presented as Appendix A to this plan. The information recorded on this log, when applicable, may include:

- The load identification number for the material/waste.
- The material/waste disposal approval number.
- The quantity of the material/waste.
- The facility to which the material/waste was sent.
- The manifest number (if required) for shipment off-site.
- The date the material/waste was shipped.
- The date on which it was received at the facility.
- The date a certificate of acceptance or disposal was received from the facility (if applicable).

5.3 On-Site Spill Response Plan

All transportation subcontractors will have spill response contingency plans for handling spills ranging from small incidental releases to large releases caused by overturns (See Section 9.3). Sevenson personnel will handle small releases onsite. Large releases caused by full overturns for onsite incidents will be handled by teams of the transporter's in-house response crews supplemented by Sevenson or additional subcontractors as required. Manpower, equipment and materials are handled on a case-by-case basis.

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6.1 **DOT-Required Placards**

All transport vehicles operating within the Site perimeter that do not travel public access roadway will not require D.O.T. placarding.

All DOT and/or RCRA/TSCA regulated materials shipped from the Site to the appropriate disposal facility will be transported in properly placarded, permitted vehicles. The following is a list, by waste type, of D.O.T. shipping name, hazard class, and placard requirements for anticipated waste materials:

Waste Type	D.O.T. Shipping Name	Hazard Class	Hazard Number
TSCA Hazardous (PCB > 50 ppm)	RQ, Polychlorinated Biphenyls, Solid	9	UN 3432
Non-hazardous Debris and Soil	Non D.O.T. Regulated Material (Site Soils and Debris)	None	None

A total of four placards will be placed on each vehicle, with one placard affixed in a place that is clearly visible on each side and on each end of the dump box of the vehicle. The position, durability, color, size and type of the placard will comply with all requirements set forth by 49 CFR Section 172.504, 172.508, 172.516, 172.519, 172.331, and 172.332.

Office Waste and Sanitary Facility Waste from the Site are not considered D.O.T. or RCRA/TSCA hazardous. They will be transported by truck for disposal by the appropriate municipal or private entity or subcontractor for offsite management. No D.O.T. placarding of this material shall be required.

6.2 **Example of Placards**

The above referenced placard will be vinyl and measure 10.75" x 10.75" and be imprinted with the numbers 3432. An example of a placard is included in Appendix F of this plan. If during the completion of an Offsite Property area, additional designation placards are required, this plan will be amended to included examples of each.

7 MODE AND ROUTE OF TRANSPORTATION

This section describes the procedures for transportation and disposal of material and waste during remedial activities.

Sevenson personnel and the designated onsite Transportation Coordinator will manage all aspects of transportation for disposal for all waste at the Site. This will include the scheduling, staging, directing from various Site locations, issuance of required paperwork, and final inspection prior to exit from the Site. Further detail and explanation of transport activities is found in the Traffic Control and Transportation Plan, submitted under separate cover.

A log of all truckloads will be maintained on site. This log, at a minimum, will contain the date shipped, truck number/license plate number, weight, manifest number, truck tare weight, and any other pertinent information pertaining to a particular shipment.

The transportation subcontractor will be responsible for en-route tracking and management of waste shipments. A daily summary of truck delivery logs will be provided to Sevenson by the transportation subcontractor. Sevenson will coordinate with the transportation subcontractors to assure adequate numbers of trucks are scheduled daily to meet contract completion schedules.

The designated Transportation Coordinator for this project is Kenneth Paisley, of Sevenson. Mr. Paisley's resume is included in Appendix C of this Plan.

7.1 Type of Transporter

Hazardous bulk solid wastes will be loaded directly into polypropylene-lined rolloff boxes or end dump trailers for transport to the appropriate disposal facility as referenced in Section 2.0 of this Plan. Non-hazardous loads will not require a lined transport vehicle.

Municipal (Office) wastes will be consolidated into a commercial dumpster that will be staged at the Site. The contracted municipal waste hauler will empty the container into a bulk transfer trailer.

Sanitary waste will be removed from Site Port-A-Johns by the contracted septic waste service. Each Port-A-John unit will be emptied with a vacuum tanker.

7.2. **Transport Vehicle Capacity**

The bulk solid rolloff boxes will measure approximately 20' long (outside dimensions), 8' wide (outside dimensions) and 6' high. Each rolloff box will hold approximately 20-24 cubic yards or between 22-23 tons of material.

The bulk solid dump trailers will measure approximately 40' long (outside dimensions), 8' wide (outside dimensions) and 7' high. Each dump trailer will hold approximately 40 cubic yards or between 22-25 tons of material.

Municipal and sanitary contractors will supply adequate equipment to perform removal of their designated wastes.

7.3. **Anticipated Shipment Frequency**

Bulk solids will be loaded from outside the temporary storage pad or excavation exclusion zone areas. All full transport vehicles will be immediately tarped to prevent the infiltration of precipitation and any possible drying/dusting problems. All loading and removal will be performed between the hours of 7:00 am and 5:00 pm, subject to change by request to USACE and approval by the USEPA. Sevenson will coordinate with the transportations subcontractors to provide sufficient vehicles to maintain the project schedule.

The project schedule and the proposed excavation plan may require the shipment of waste to multiple disposal facilities on any given workday. Sevenson will coordinate closely with each facility's designated representative and/or on-site transportation coordinator. A color-coded excavation site diagram will be prepared based upon the previous determinations of waste types from the contract drawings and results of additional site sampling, as required. A review of the past days' removal, and the current days anticipated production will be conducted with field supervisors and operators at the morning tailgate meeting. A daily verification of completed and proposed scheduling of excavation will be made with the onsite transportation coordinator, each disposal facility, and the anticipated transporters of waste. Records pertaining to all daily demolition and/or excavation activities and contacts with various subcontractors will be maintained in the Daily Quality Control Reports for the Site.

Office waste will be collected in appropriate containers (dumpsters) onsite and picked up on a weekly basis by a municipal waste contractor.

Sanitary wastes will be collected on a minimum weekly basis, or more frequently as required, by the septic disposal contractor in septic waste vacuum tanker.

7.4 Transportation Route

The disposal transport vehicles will be called to the site on an as required basis. If trucks approach the Site via I-287N, take Exit 4 (Hamilton Boulevard); from I-287S, take Exit 5 and make a left onto Stelton Road (CR529). After exiting (either North or South) take Hamilton Boulevard and make a left onto Clinton (from Exit 5) or continue on Hamilton and make a right onto Clinton to a right onto New Market Avenue (from Exit 4) and enter the Site at 333 Hamilton Boulevard. The trucks will then be directed by Sevenson personnel to the loading location.

Once loaded, the vehicles will proceed to the Site scale for weighing. Once weighed, the truck will proceed to the tarping station for final preparation. After tarping, the exterior of the truck/trailer will be decontaminated, as necessary, on the decontamination pad. After receiving final notification from the onsite Transportation Coordinator, the trucks will then exit the gate and proceed on a reverse route to l-287 North or South. The trucks will then proceed to the appropriate disposal facility by the specified routes.

All municipal solid waste and sanitary waste transport vehicles will also utilize these routes to enter and leave the Site.

7.5 Temporary Off-Site Storage

All transport vehicles will travel directly to their intended disposal facility. No offsite temporary storage of Site materials is anticipated. Should mechanical failure or driver injury necessitate the unscheduled storage of materials once the vehicle is en route, the appropriate parties will immediately notify Sevenson. Sevenson will make the USACE aware of any transport irregularities and will coordinate with USACE to resolve any difficulties.

If possible, the vehicle should be returned to the Site or removed to the transporter's own secure facility or service yard until alternate arrangements can be made. If this is not possible, another facility's secured yard or lot will be desirable.

7.6 Weight and Size Limitations

The bulk solid trailers and their associated transport vehicle furnished by the transporters will have a legal over-the-road weight capacity of 80,000 pounds gross weight. Each tractor and trailer combination will vary slightly in payload capacity, so the driver of the vehicle will be consulted prior to exiting the Site to confirm payload appropriateness.

All other types of transport vehicles will be subject to limitations according to their manufacturer's requirements. All hauling weights will be confirmed with the driver and their respective dispatcher prior to the first removal of a particular waste from the Site.

7.7 Vehicle Licensing and Registration Requirements

All vehicles will be licensed and permitted in all states through which they may travel. The onsite Transportation Coordinator will confirm all permitting issues with the dispatcher of the trucking company. Copies of all permits and licenses will be made available onsite upon request by USACE.

8.1 Summary and Examples of Completed Shipping Papers

The required shipping papers for each shipment of TSCA regulated hazardous waste from the Site will consist of a Hazardous Waste Manifest, Land Ban Disposal Restriction (LDR) Form, and, if required by the transportation company, a truckers' bill of lading.

One set of forms will be provided for each load. When ready to exit the Site, the truck driver will be presented the completed paperwork. He will sign the manifest, as directed, and carry the manifest, LDR, and bill of lading (as required), in his cab at all times until he arrives at the disposal facility.

All other Non-hazardous solid wastes will be shipped with the shipping documentation (bill of lading, receipt ticket, etc.) supplied by the appropriate subcontractor.

Copies of example shipping documents can be found in Appendix E of this Plan.

9.0 TRANSPORTATION QA PROGRAM

9.1 Truck Inspection Criteria and Corrective Action Procedures

9.1.1 Truck Integrity

All truck/transportation vehicle tires should be inspected immediately upon arrival at Site by the designated Transportation Coordinator and/or Sevenson's Project Manager for punctures, cracks, or protrusions. It is the responsibility of the appropriate transportation subcontractor to deliver well-maintained, usable transport vehicles to the Site and the responsibility of Sevenson to determine if the vehicle is fit to carry the specific waste. If the vehicle is not acceptable to Sevenson, the subcontractor shall be notified immediately that the vehicle has been rejected and arrangements shall be made for replacement.

9.2 Lining and Tarping Procedures

All bulk solid hazardous waste transport vehicles will be lined with a 6 mil polyethylene liner. The liners will have sufficient end flaps and side flaps which extend over the edges of the box to protect from contamination. Once loaded, the flaps will be folded into the center of the waste to partially cover the load.

The tarps (top covers) are made of 9 mil woven polypropylene fabric and measure approximately 10' wide x 24' long. The tarps will be secured using braided rope through 16 tie-down hooks.

Although not anticipated, liners for non-hazardous trucks may be used at the discretion of the disposal facility and Sevenson. All non-hazardous loads will be securely tarped, however, before leaving the Site.

9.3 Spill Response Contingency Plan

All transportation subcontractors will have spill response contingency plans for handling spills ranging from small incidental releases to large releases caused by overturns. Large releases caused by full overturns or offsite incidents will be handled by teams of the transporter's in-house response crews supplemented by subcontractors as required. Manpower, equipment and materials are handled on a case-by-case basis. Any subcontractor will notify Sevenson in the event that any spillage occurs during transit to its appropriate designation facility. Each truck transporter is required to maintain and follow a Spill Contingency Plan. Notification by the truckers of any incidents shall be made to Sevenson. In turn, Sevenson will notify all appropriate individuals associated with this project of any spill and the response actions being taken. Copies of the transporter's Spill Contingency Plan are included in Appendix D.

APPENDIX A MATERIAL AND WASTE DISPOSAL TRACKING LOG

APPENDIX B FACILTY ACCEPTANCE LETTER

APPENDIX C
TRANSPORTATION COORDINATOR RESUME

APPENDIX D SPILL CONTINGENCY PLANS

APPENDIX E EXAMPLE SHIPPING PAPERWORK

APPENDIX F EXAMPLE PLACARDS

QUALITY ASSURANCE PROJECT PLAN

CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE OPERABLE UNIT 1 – SOIL REMEDIATION SOUTH PLAINFIELD, NEW JERSEY

Prepared by:
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2749 Lockport Road
Niagara Falls, New York 14305

Based on the Intergovernmental Data Quality Task Force Uniform Federal Policy for Quality Assurance Project Plans (Final Version 1, March 2005)

Revision 2: September 6, 2012

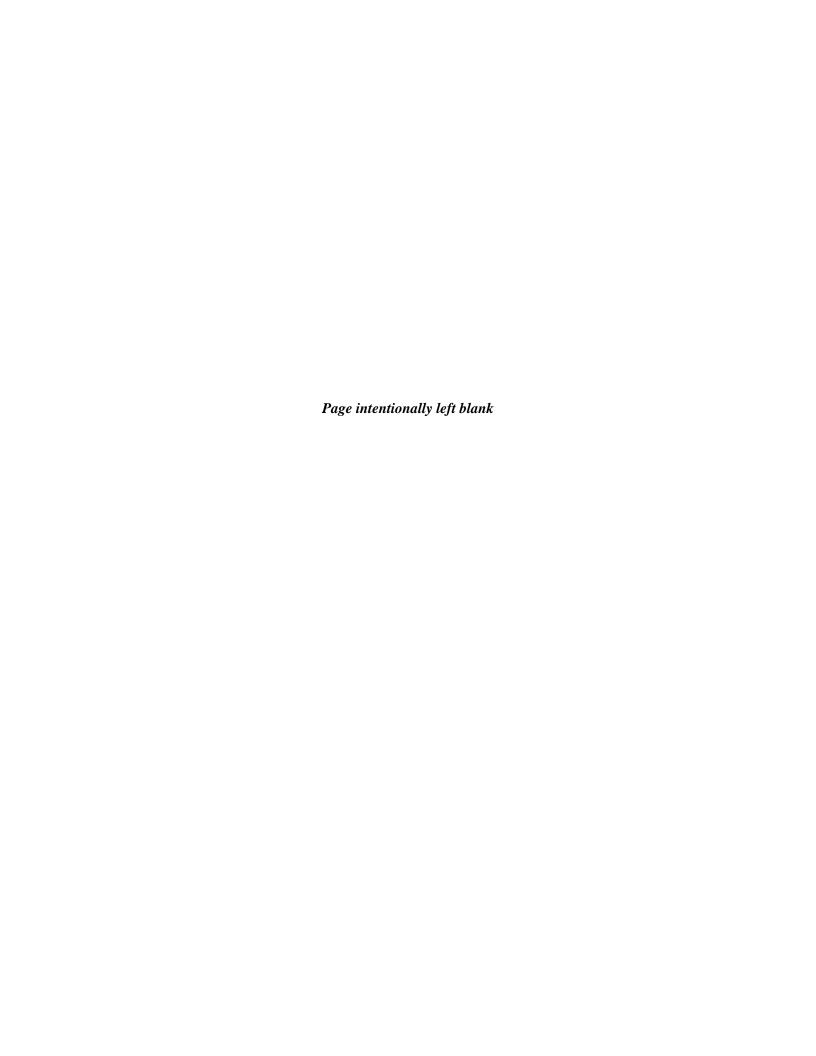


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- Key Map
- Property 108, 129, 301, and 303 Excavation Plan
- Property 116 and 302 Excavation Plan
- Property 128, 304, and 305 Excavation Plan

Appendix 2 – Data Needs Table

Appendix 3 – Data Quality Objectives

Appendix 4 – Measurement Performance Criteria

Appendix 5 - Standard Sample Tracking and Documentation Forms, Review Forms, and Checklists

- Sample Identification Label
- Chain of Custody Form
- Preparatory Phase Checklist
- Initial/Follow-Up Phase Inspection Checklist
- Daily Chemical Quality Control Report
- Site QC Inspection Report
- Task Specific QC Checklist Work Task: Packing, Storing, and Shipment of Samples
- Task Specific QC Checklist Work Task: Field Documentation
- Task Specific QC Checklist Work Task: Decontamination
- Task Specific QC Checklist Work Task: Sample Cooler Shipment
- Field Change Request Form
- Non-Conformance/Quality Control Report

Appendix 6 – Laboratory Standard Operating Procedures



LIST OF ABBREVIATIONS AND ACRONYMS

ADR Automated Data Review

ANSETS Analytical Services Tracking System AOC Administrative Order of Consent

ATSDR Agency for Toxic Substances and Disease Registry

BFB Bromofluorobenzene bgs Below Ground Surface Corrective Action CA

CCB Continuing Calibration Blank Continuing Calibration Verification **CCV** Certified Hazardous Materials Manager **CHMM**

CIH Certified Industrial Hygienist

COC Chain of Custody

Chemical Oxygen Demand COD COR Contracting Officer Representative

Contractor Quality Control Systems Manager **CQCSM**

CVAA Cold Vapor Atomic Absorption **DFTPP** Decachlorotriphenylphosphine DOD Department of Defense

Data Quality Indicator DQI DOO Data Quality Objective

DSC D.S.C. of Newark Enterprises, Inc.

Electronic Data Deliverable **EDD**

EDMS Environmental Data Management System

Environmental Laboratory Accreditation Program **ELAP**

Field and Analytical Services Teaming Advisory Committee **FASTAC**

FWHM Full Width at Half Maximum

GC-ECD Gas Chromatography with Electron Capture Detector

GC/MS Gas Chromatography/Mass Spectroscopy

Initial Calibration Blank ICB

Inductively Coupled Plasma-Atomic Emission Spectrometry **ICP-AES**

ICS Interference Check Sample **ICV** Initial Calibration Verification

KCD Kansas City District Laboratory Control Sample LCS

Laboratory Information Management System LIMS

Limit of Detection LOD

MDA Minimum Detectable Activity Method Detection Limit **MDL**

MPC Measurement Performance Criteria

Matrix Spike MS

Matrix Spike Duplicate **MSD**

Normalized Absolute Difference NAD

New Jersey Department of Environmental Protection **NJDEP**

Naturally Occurring Radioactive Material **NORM**

National Priorities List **NPL** NYD New York District

Occupational Safety and Health Administration **OSHA**

Operable Unit 1 OU-1

Polychlorinated Biphenyl **PCB** Post-Digestion Spike **PDS** Project Manager PM Parts Per Million ppm

PQL Practical Quantitation Limit



PRAC Pre-Placed Remedial Action Contract

QA Quality Assurance QC Quality Control

QCSR Quality Control Summary Report

QL Quantitation Limit
QSM Quality Systems Manual

RCRA Resource Conservation and Recovery Act

RDCSRS Residential Direct Contact Soil Remediation Standards

REM Registered Environmental Manager

RL Reporting Limit
ROD Record of Decision

RPD Relative Percent Difference RPM Remedial Project Manager RRF Relative Response Factor RSD Relative Standard Deviation

Sevenson Environmental Services, Inc.

SOP Standard Operating Procedure Spectrum Analytical, Inc.

SSHERP Site Safety, Health, and Emergency Response Plan

SSHO Site Safety and Health Officer SVOC Semi-Volatile Organic Compound

TBD To Be Determined

TCLP Toxicity Characteristic Leachate Procedure

TSCA Toxic Substance Control Act

UFP- QAPP Uniform Federal Policy - Quality Assurance Project Plan

UPS United Parcel Service

USACE United States Army Corps of Engineers

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compound

yd³ Cubic Yard

INTRODUCTION

Project Background

The Cornell-Dubilier Electronics Superfund Site (the site) is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey. A site location map is included in Appendix 1. The United States Environmental Protection Agency (USEPA) assigned identification number NJD981557879 to the site.

The site consists of approximately 26 acres including the Hamilton Industrial Park, contaminated portions of the Bound Brook adjacent to and downstream of the industrial park, and contaminated residential, municipal, and commercial properties in the vicinity of the former Cornell-Dubilier Electronics Corporation, Inc. facility. Former buildings on the site have been demolished and their footprints covered with temporary asphalt pavement. The only remaining building at the site is a water tower. The site is bounded by the Lehigh Valley Railroad, Perth Amboy Branch (presently Conrail) to the northeast, the South Plainfield Department of Public Works property to the southeast, by single-family residential properties across Spicer Avenue to the southwest, and by mixed residential and commercial properties across Hamilton Boulevard to the northwest. The area is a busy, heavily developed, mixed-use neighborhood.

The site remediation was separated into multiple Operable Units. The scope of the current remedial action is Operable Unit 1 (OU-1), specifically remediation of residential, commercial, and municipal properties in the vicinity of the former Cornell-Dubilier Electronics facility. The response action selected in the Record of Decision (ROD) dated September 2003 for OU-1 soils includes:

- Excavation of contaminated soil containing polychlorinated biphenyls (PCBs) from properties, backfilling with clean fill, and property restoration as necessary.
- Transportation of the contaminated soil offsite for disposal, with treatment as necessary.
- Indoor dust remediation where PCB-contaminated dust is encountered.
- Where necessary, temporary relocation of residents during the indoor remediation.

The purpose of this Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP) is to provide procedures for the collection, analysis, and evaluation of data for the OU-1 soils in accordance with the response action selected in the ROD. No work will be conducted under the current contract with regards to the indoor dust remediation.

Site History and Contaminants

Cornell-Dubilier Electronics manufactured electronic parts and components, including capacitors, from 1936 to 1962. PCBs and chlorinated organic degreasing solvents were used in the manufacturing process. It is alleged that during the period of operation, Cornell-Dubilier Electronics dumped PCB-contaminated materials and other hazardous substances directly onto site soils. A former employee has claimed that the rear of the property was saturated with transformer oils and that capacitors were also buried behind the facility during the same time period (Foster Wheeler, 2002). Based on historic site practices, portions of the site have the potential to be contaminated with volatile organic compounds (VOCs; primarily trichloroethene and dechlorination products), PCBs, dioxins, metals (primarily mercury and lead), and other constituents of potential concern. Historical site data pertaining to OU-1 are summarized in the documents included in Worksheet #13 of this UFP-QAPP.



State and Federal Response Actions

In June 1994, at the request of the New Jersey Department of Environmental Protection (NJDEP), USEPA collected and analyzed soil, surface water, and sediments at the facility. The results of the sample analyses revealed that elevated levels of PCBs, VOCs, and inorganic chemicals were present at the site.

In February, June, and July 1996, USEPA collected and analyzed additional soil samples at the facility. The results confirmed the presence of elevated levels of PCBs, and also identified the presence of lead.

As a result of the contamination found at the facility, in March 1997, USEPA ordered the owner of the facility property, D.S.C. of Newark Enterprises, Inc., (DSC) to perform a removal action to mitigate risks associated with contaminated soil and surface water runoff from the facility. The removal action included paving driveways and parking areas in the industrial park, installing a security fence, and implementing drainage controls.

In 1997, USEPA conducted a preliminary investigation of the Bound Brook to evaluate the potential impacts of contamination on human health and the environment. Elevated levels of PCBs were found in fish and sediments of the Bound Brook. As a result of these investigations, NJDEP issued a fish consumption advisory for Bound Brook and its tributaries, including New Market Pond and Spring Lake.

In October and November 1997, USEPA collected soil and indoor dust samples from residential properties on Spicer Avenue, near the facility property. USEPA and the Agency for Toxic Substances and Disease Registry (ATSDR) reviewed the data obtained from this sampling and concluded that exposure to dust and soil posed a potential health concern for residents at several of the properties tested. To limit the potential for exposure to PCBs until a final remedy could be selected, USEPA initiated another removal action to clean the interiors of seven homes on Spicer Avenue, Garibaldi Avenue, and Hamilton Boulevard. USEPA performed interior cleaning on seven properties and entered into an administrative order of consent (AOC) with DSC and Cornell-Dubilier Electronics for removal of contaminated soil from six properties. Interior dust remediation was completed in April 1998, and removal of PCB-contaminated soil was completed in September 1999.

In 1998, USEPA expanded its investigation to Delmore Avenue and Hamilton Boulevard near the industrial park. Again, USEPA determined that PCBs found in dust and soil posed a potential health concern for residents. USEPA cleaned the interiors of eight homes on Delmore Avenue and Hamilton Boulevard, and entered into another AOC for removal of contaminated soil from seven properties. These removal actions were completed in January 2000, further limiting the potential for exposure until a final remedy could be selected.

In July 1998, USEPA included the site on the National Priorities List (NPL).

Site Specific Definition of the Problem

A complete description of the problem definition is included in Worksheet #10 of this UFP-QAPP. Work is being conducted at properties located in the vicinity of the former Cornell-Dubilier Electronics facility due to contamination found in soil associated with past industrial operations conducted at the site. A remedial design for OU-1 soil has been completed, and the work included the sampling and analysis required to define the extent of the excavations to be performed under this UFP-QAPP. Sevenson will be responsible for removal of contaminated soil based upon the predetermined limits of excavation; backfilling of excavations with offsite materials; transportation of all soil and debris to an offsite disposal



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facility; site restoration and implementation of appropriate site controls; and other activities necessary for complete and proper remediation of the site.



QAPP Worksheet #1 Title and Approval Page

Site Name/Project Name: Cornell-Dubilier Electronics Superfund Site

Site Location: South Plainfield, New Jersey

Document Title: Uniform Federal Policy – Quality Assurance Project Plan for Cornell-Dubilier

Electronics Superfund Site, Operable Unit 1 - Soil Remediation

Lead Organization: United States Army Corps of Engineers (USACE) – Kansas City District (KCD),

USACE - New York District (NYD), and USEPA Region II

Preparer's Name and Organizational Affiliation: Jennifer Singer, Sevenson Environmental Services,

Inc. (Sevenson)

Preparer's Address, Telephone Number, and E-mail Address: 2749 Lockport Road, Niagara Falls,

New York 14305; (716) 284-0431; jsinger@sevenson.com

Preparation Date: Revision 2: September	6, 2012
Contractor's Project Manager:	Signature, Date Kim Lickfield, Sevenson Environmental Services, Inc.
Contractor's Project QA Officer:	Signature, Date William Zambrana, Sevenson Environmental Services, Inc.
Lead Organization's Project Manager:	Signature, Date Ken Mass, USACE
Approval Signatures:	
	Signature, Date Diego Garcia, USEPA
Other Approval Signatures:	Signature, Date Patrick Nejand, USACE COR
	Signature, Date
	Printed Name/Title/Organization



QAPP Worksheet #2 QAPP Identifying Information

Site Name/Project Name: Cornell-Dubilier Electronics Superfund Site

Site Location: South Plainfield, New Jersey

Site Number/Code: NJD981557879

Operable Unit: OU1 – Soil Remediation

Contractor Name: Sevenson Environmental Services, Inc.

Contractor Number: W912DO-10-D-3006

Contract Title: Large Business Remediation Services Pre-Placed Remedial Action Contract (PRAC)

Work Assignment Number: Task Order #0002

1. Identify guidance used to prepare QAPP:

Uniform Federal Policy for Quality Assurance Project Plans, Final Version 1, March 2005 Guidance on Systematic Planning Using the Data Quality Objective Process, EPA QA/G-4, EPA/240/B-06/006, February 2006

2. Identify regulatory program:

USEPA Region II, Superfund

3. Identify approval entity:

USEPA Region II, USACE-KCD, USACE-NYD

- 4. Indicate whether the QAPP is a generic or a project-specific QAPP.
- 5. List dates of scoping sessions that were held: May 2012

6. List dates and titles of QAPP documents written for previous site work, if applicable:

Quality Assurance Project Plan – Final Soils (Malcolm Pirnie, Inc., August 2006)

Quality Assurance Project Plan – OU2, Cluster 12 (Sevenson, November 2006)

Quality Assurance Project Plan – OU2, Cluster 12, Revision 1 (Sevenson, December 2006)

Quality Assurance Project Plan – OU2, Cluster 12, Revision 2 (Sevenson, December 2006)

UFP-QAPP – OU-2, Building Demolition (Sevenson, April 2007)

UFP-QAPP – OU-2, Building Demolition, Addendum 1, Capacitor Disposal Area, Revision 3 (Sevenson, October 2007)

UFP-QAPP – OU1 Vicinity Property Pre-Design Sampling (Malcolm Pirnie, Inc., March 2008)

UFP-QAPP – OU-2, Soil Remediation, Revision 3 (Sevenson, April 2009)

UFP-QAPP – OU-2, Soil Remediation, Addendum 1, Temporary Water Treatment Facility, Revision 1 (Sevenson, November 2009)

UFP-QAPP – OU2, Soil Remediation, Addendum 2, Low-Temperature Thermal Desorption Operational Samples (Sevenson, March 2011)

7. List organizational partners (stakeholders) and connection with lead organization:

The project organizational partners include representatives from USEPA Region II, USACE-KCD, USACE-NYD, and Sevenson. The USEPA and USACE will provide project and contract management guidance to Sevenson. Sevenson will be the primary contractor and will be responsible for developing and implementing the remedial action and will provide project management to any other subcontractors.



8. List data users:

USEPA Region II, USACE-KCD, USACE-NYD, NJDEP, Sevenson

9. If any required QAPP elements and required information are not applicable to the project, then circle the omitted QAPP elements and required information on the attached table. Provide an explanation for their exclusion below:

No required QAPP elements were omitted.

Required QAPP Element(s) and Corresponding QAPP Section(s)	QAPP Worksheet # in QAPP Workbook	Required Information				
Project M	Project Management and Objectives					
2.1 Title and Approval Page	1	- Title and Approval Page				
2.2 Document Format and Table of Contents 2.2.1 Document Control Format 2.2.2 Document Control Numbering System 2.2.3 Table of Contents 2.2.4 QAPP Identifying Information	2	Table of ContentsQAPP Identifying Information				
2.3 Distribution List and Project Personnel Sign-Off Sheet 2.3.1 Distribution List 2.3.2 Project Personnel Sign-Off Sheet	3 4	 Distribution List Project Personnel Sign-Off Sheet 				
2.4 Project Organization 2.4.1 Project Organizational Chart 2.4.2 Communication Pathways 2.4.3 Personnel Responsibilities and Qualifications 2.4.4 Special Training Requirements and Certification	5 6 7 8	 Project Organizational Chart Communication Pathways Personnel Responsibilities and Qualifications Table Special Personnel Training Requirements Table 				
2.5 Project Planning/Problem Definition 2.5.1 Project Planning (Scoping) 2.5.2 Problem Definition, Site History, and Background	9 10 Site maps included in Appendix 1	 Project Planning Session Documentation (including Data Needs tables) Project Scoping Session Participants Sheet Problem Definition, Site History, and Background Site Maps (historical and present) 				
Project Quality Objectives and Measurement Performance Criteria 2.6.1 Development of Project Quality Objectives Using the Systematic Planning Process 2.6.2 Measurement Performance Criteria	11 12	 Site-Specific PQOs Measurement Performance Criteria Table 				



Required QAPP Element(s) and Corresponding QAPP Section(s)	QAPP Worksheet # in QAPP Workbook	Required Information
2.7 Secondary Data Evaluation	13	 Sources of Secondary Data and Information Secondary Data Criteria and Limitations Table
2.8 Project Overview and Schedule2.8.1 Project Overview2.8.2 Project Schedule	14 15 16	 Summary of Project Tasks Reference Limits and Evaluation Table Project Schedule/Timeline Table
Measur	ement/Data Acquisi	tion
3.1 Sampling Tasks 3.1.1 Sampling Process Design and Rationale 3.1.2 Sampling Procedures and Requirements 3.1.2.1 Sampling Collection Procedures 3.1.2.2 Sample Containers, Volume, and Preservation 3.1.2.3 Equipment/Sample Containers Cleaning and Decontamination Procedures 3.1.2.4 Field Equipment Calibration, Maintenance, Testing, and Inspection Procedures 3.1.2.5 Supply Inspection and Acceptance Procedures 3.1.2.6 Field Documentation	17 18 19 20 21 22	 Sampling Design and Rationale Sample Location Map Sampling Locations and Methods/ SOP Requirements Table Analytical Methods/SOP Requirements Table Field Quality Control Sample Summary Table Sampling SOPs Project Sampling SOP References Table Field Equipment Calibration, Maintenance, Testing, and Inspection Table
Procedures 3.2 Analytical Tasks 3.2.1 Analytical SOPs 3.2.2 Analytical Instrument Calibration Procedures 3.2.3 Analytical Instrument and Equipment Maintenance, Testing, and Inspection Procedures 3.2.4 Analytical Supply Inspection and Acceptance Procedures	23 24 25	 Analytical SOPs Analytical SOP References Table Analytical Instrument Calibration Table Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table



Required QAPP Element(s) and Corresponding QAPP Section(s)	QAPP Worksheet # in QAPP Workbook	Required Information			
3.3 Sample Collection Documentation, Handling, Tracking, and Custody Procedures 3.3.1 Sample Collection Documentation 3.3.2 Sample Handling and Tracking System 3.3.3 Sample Custody 3.4 Quality Control Samples 3.4.1 Sampling Quality Control Samples 3.4.2 Analytical Quality Control Samples 3.5 Data Management Tasks	26 27 28	 Sample Collection Documentation Handling, Tracking, and Custody SOPs Sample Container Identification Sample Handling Flow Diagram Example Chain-of-Custody Form and Seal QC Samples Table Screening/Confirmatory Analysis Decision Tree Project Documents and			
3.5.1 Project Documentation and Records 3.5.2 Data Package Deliverables 3.5.3 Data Reporting Formats 3.5.4 Data Handling and Management 3.5.5 Data Tracking and Control	29	Records Table - Analytical Services Table - Data Management SOPs			
As	sessment/Oversight				
4.1 Assessments and Response Actions 4.1.1 Planned Assessments 4.1.2 Assessment Findings and Corrective Action Responses	30 31	 Assessments and Response Actions Planned Project Assessments Table Audit Checklists Assessment Findings and Corrective Action Responses Table 			
4.2 QA Management Reports	32	- QA Management Reports Table			
4.3 Final Project Report					
Data Review					
5.1 Overview					



Required QAPP Element(s) and Corresponding QAPP Section(s)	QAPP Worksheet # in QAPP Workbook	Required Information
5.2 Data Review Steps	33	- Verification (Step I) Process
5.2.1 Step I: Verification	34	Table
5.2.2 Step II: Validation		- Validation (Steps IIa and IIb)
5.2.2.1 Step IIa Validation	35	Process Table
Activities		- Validation (Steps IIa and IIb)
5.2.2.2 Step IIb Validation	36	Summary Table
Activities		- Usability Assessment
5.2.3 Step III: Usability	37	
Assessment		
5.2.3.1 Data Limitations and		
Actions from		
Usability Assessment		
5.2.3.2 Activities		
5.3 Streamlining Data Review	36	
5.3.1 Data Review Steps To Be		
Streamlined		
5.3.2 Criteria for Streamlining		
Data Review		
5.3.3 Amounts and Types of Data		
Appropriate for		
Streamlining		



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QAPP Worksheet #3 Distribution List

QAPP Recipients	Title	Organization	Telephone Number	Fax Number	E-mail Address	Document Control Number
Diego Garcia	Remedial Project Manager (RPM)	USEPA	(212) 637-4947		Garcia.diego@epamail.epa.gov	CDESS-QAPP-01
Ken Maas	KCD Project Manager (PM)	USACE	(816) 983-3709		Kenneth.e.maas@usace.army.mil	CDESS-QAPP-02
Patrick Nejand	Contracting Officer Representative (COR)	USACE	(732) 846-5830		Patrick.c.nejand@uace.army.mil	CDESS-QAPP-03
Paula Higgins	Chief NYD Safety	USACE	(212) 264-9050			CDESS-QAPP-04
Chris Nastasi	Project Engineer	USACE	(732) 846-5830		Chris.j.nastasi@usace.army.mil	CDESS-QAPP-05
Ben Girard	PM	Arcadis	(716) 667-0900		Ben.girard@arcadis-us.com	CDESS-QAPP-06
William Zambrana	Contractor Quality Control Systems Manager (CQCSM)	Sevenson	(908) 769-5301	(908) 769-5303	wzambrana@sevenson.com	CDESS-QAPP-07
Jennifer Singer	Data Quality Control Review Chemist	Sevenson	(716) 284-0431	(716) 285-4201	jsinger@sevenson.com	CDESS-QAPP-08
Agnes Huntley	PM	Spectrum Analytical, Inc. (Spectrum)	(401) 732-3400	(401) 732-3499	ang@spectrum-analytical.com	CDESS-QAPP-09

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QAPP Worksheet #4-1 Project Personnel Sign-Off Sheet

Organization: Sevenson

Project Personnel	Title	Telephone Number	Signature	Date
Kim Lickfield	PM	(908) 769-5301		
William Zambrana	CQCSM	(908) 769-5301		
Ken Paisley	Regulatory Specialist	(716) 284-0431		
Jennifer Singer	Data Quality Control Review Chemist	(716) 284-0431		
Al LaGreca	Program Manager	(716) 284-0431		

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QAPP Worksheet #4-2 Project Personnel Sign-Off Sheet

Organization: USEPA

Project Personnel	Title	Telephone Number	Signature	Date
Diego Garcia	RPM	(212) 637-4947		

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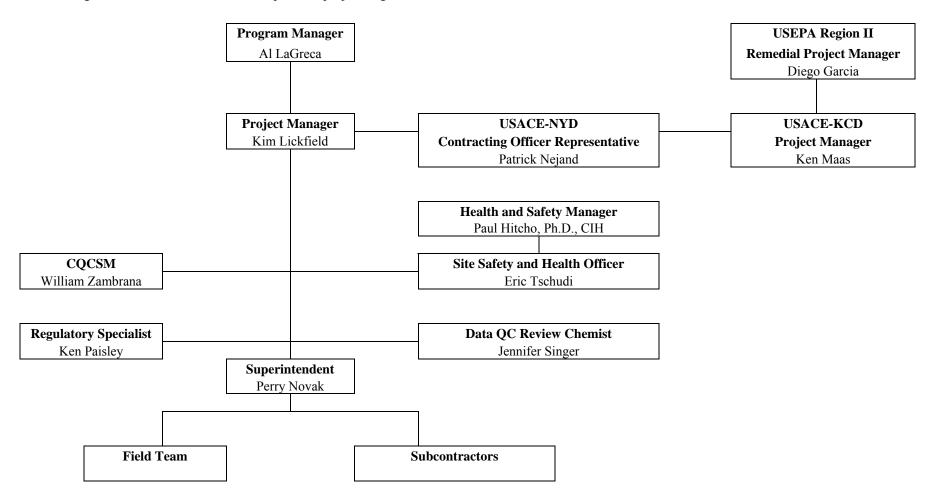
QAPP Worksheet #4-3 Project Personnel Sign-Off Sheet

Organization: USACE

Project Personnel	Title	Telephone Number	Signature	Date
Amy Darpinian	Project Chemist	(816) 389-3897		
Patrick Nejand	COR	(732) 846-5830		
Paula Higgins	Chief NYD Safety	(212) 264-9050		
Chris Nastasi	Project Engineer	(732) 846-5830		

QAPP Worksheet #5 Project Organizational Chart

The organizational chart and the description of project organization and the roles of the team members are summarized below:



Project/Task Organization Overview

The project management team will consist of representatives from USEPA Region II, USACE-KCD, USACE-NYD, NJDEP, and Sevenson. USACE-KCD holds the contract obligations for the project, while USACE-NYD is overseeing the operations aspect of the contract on behalf of USACE-KCD. USEPA and USACE will provide technical oversight to the project and contract management guidance to Sevenson. NJDEP will provide the USEPA with State approval. Sevenson will be the primary contractor and will be responsible for developing and implementing the remedial action and will provide project management to other subcontractors.

Cornell-Dubilier Site Team Members

This section contains a description of the project organizational structure. Diego Garcia is the USEPA RPM with responsibility for the site. Ken Maas is the USACE PM. Sevenson will be the primary contractor and will provide project management to other subcontractors.

Sevenson Home Office Personnel

<u>Paul Hitcho, PhD, CIH – Health and Safety Manager.</u> Dr. Hitcho is a Certified Industrial Hygienist (CIH) with over 20 years experience in managing health and safety issues for government and private remedial projects. Dr. Hitcho will be responsible for review and approval of the Site Safety, Health, and Emergency Response Plan (SSHERP). He will also provide Site Safety and Health Officer (SSHO) supervision, present initial site-specific training to all Site personnel, perform the respirator qualitative fit tests, and develop the air-monitoring program. He will conduct quarterly safety audits/inspections.

Al LaGreca – Program Manager. Mr. LaGreca will be ultimately responsible for the project's success. He will make available all Sevenson resources required to complete the project successfully. He will be kept informed of the project's progress and whether or not the contract is meeting its goals. Mr. LaGreca will resolve problems that cannot be resolved by the Project Manager or the Site Superintendent. He will periodically visit the site and become acquainted with field personnel and other representatives. It is anticipated Mr. LaGreca will be onsite once a month.

<u>Kenneth Paisley, CHMM – Regulatory Specialist/Waste Disposal Coordinator.</u> Mr. Paisley is committed to overseeing all field sampling and data acquisition plans, as well as interfacing with offsite laboratory concerns. Mr. Paisley will review laboratory reports with the selected laboratory in order to ensure compliance with project specifications and all required protocols. He will coordinate offsite waste removal, including transport, disposal, manifesting, waste profiles, regulatory compliance, and disposal requirements.

<u>Jennifer Singer, REM – Data Quality Control Review Chemist.</u> The Data Quality Control Review Chemist will support the CQCSM. Ms. Singer will perform a data review of all analytical data reports received from the laboratory prior to the submission of the data to the USACE and prior to preparation and completion of the chemical data reporting.



Sevenson Field Personnel

<u>Kim Lickfield – Onsite Project Manager.</u> The responsibilities of the Project Manager will include:

- Subcontractor coordination and oversight.
- Acting as liaison between Sevenson, USACE, and USEPA.
- Charge of all field operations.
- Hiring and termination/reassignment of personnel as necessary to support successful task order implementation.
- Management and coordination of all aspects of the project as defined in the Contract Specifications with an emphasis on adhering to the
 objectives of the remedial activities.
- Assuring corrective actions are taken for deficiencies cited during audits of sampling/analytical activities.
- Project coordination to implement and comply with the UFP-QAPP in coordination with the USACE, CQCSM, and Environmental Samplers, including the coordination of field and laboratory schedules pertaining to relevant operation/sampling activities and allocation of resources and staffing to implement the quality assurance (QA) and quality control (QC) program.
- Implementation of the SSHERP, including temporarily suspending field activities if the health and safety of personnel are endangered and/or temporarily suspending an individual for field activities for infractions of the SSHERP, pending further consideration by the Health and Safety Director.
- Review of all documents prepared by project personnel, including all relevant field records and logs.

<u>William Zambrana – Contractor Quality Control Systems Manager.</u> As CQCSM, Mr. Zambrana will report directly to the Project Manager on matters concerning quality control. He will have both the authority and the duty to stop whatever operation appears to be out of compliance with the contract documents. The CQCSM is responsible for field chemistry and environmental sampling staff, and responsibility for all records related to personnel, supplies, equipment use, equipment calibration, and waste transportation and disposal.

<u>Eric Tschudi – Site Health and Safety Officer.</u> As SSHO, Mr. Tschudi will report directly to the Corporate Health and Safety Director and be responsible for the implementation of Sevenson's approved SSHERP, including conducting required safety inspections, safety briefings, and reports of safety-related activities.



QAPP Worksheet #6 Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure
Communication with USEPA	USEPA RPM	Diego Garcia	(212) 637-4947	Primary point of contact with USEPA; can delegate communication to other internal or external points of contact; provides direction to USACE PM; communicates with NJDEP Case Manager.
Communication with USACE (lead agency - contracting)	USACE-KCD PM	Ken Maas	(816) 983-3709	Primary point of contact for USACE regarding contracting
Communication with USACE (lead agency – operations)	USACE-NYD COR	Patrick Nejand	(732) 846-5830	Primary point of contact with USACE regarding field operations; receives direction from USACE Contracting Officer; receives direction from USEPA RPM; provides direction to Sevenson.
UFP-QAPP Amendments	Sevenson	Jennifer Singer	(716) 284-0431	Sevenson Project Manager and CQCSM will initiate changes in the UFP-QAPP. Jennifer Singer will be responsible for revisions to the document. USACE and USEPA must approve all changes prior to implementation. Copies of amendments will be forwarded to all parties.
Change to Field Work	Sevenson	Field Team Leader	(908) 769-5301	Field Team Leader will notify Project Manager and CQCSM of any field variations. Project Manager will in turn notify USACE within 24 hours. Telephone and e-mail notifications are acceptable. All field changes will be documented as detailed in Worksheet #32.
Analytical Data Reporting	Sevenson	Jennifer Singer	(716) 284-0431	Jennifer Singer will review all analytical data. Any deficiencies will be reported to the Project Manager and laboratory Quality Assurance Officer.
Initiation of Corrective Action	Sevenson	William Zambrana	(908) 769-5301	Sevenson Project Manager and/or Data Quality Control Review Chemist will notify CQCSM of any issues and/or deficiencies who will in turn determine whether the need for corrective action is warranted.
Health and Safety	Sevenson	Eric Tschudi	(908) 769-5301	The SSHO will be responsible for ensuring the protocols specified in the SHERP are carried out during field activities. All safety matters will be reported to the SSHO who will in turn inform the Project Manager. If any issues arise during the field activities that the SSHO cannot address, the Corporate Health and Safety Manager, Dr. Paul Hitcho, will be immediately contacted.
Daily Field Sampling Paperwork	Sevenson	William Zambrana	(908) 769-5301	William Zambrana will e-mail or fax daily field sampling paperwork to the Project Manager and Data Quality Control Review Chemist within 2 business days.
Release of Analytical Data	Sevenson	Jennifer Singer	(716) 284-0431	No analytical data can be released until Jennifer Singer has completed the data review and William Zambrana has approved the release.
		William Zambrana	(908) 769-5301	



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Communication Drivers	Responsible Entity	Name	Phone Number	Procedure
Reporting Laboratory Data Quality Issues	Spectrum	Agnes Huntley	(401) 732-3400	The laboratory will report all QA/QC issues with project field samples to the CQCSM and Data Quality Control Review Chemist within 2 business days.

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QAPP Worksheet #7 **Personnel Responsibilities and Qualifications Table**

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Al LaGreca	Program Manager	Sevenson	Oversees project and responds to USEPA and USACE	B.S. Civil Engineering
Kim Lickfield	PM	Sevenson	Manages project – coordinates between lead agency and subcontractors	A.A.S. Construction Technology
William Zambrana	CQCSM	Sevenson	QC oversight	A.S. – Radiation Technology
Jennifer Singer	UFP-QAPP Preparer and Data Quality Control Review Chemist	Sevenson	Prepares UFP-QAPP and performs data review	M.S Environmental Pollution Control B.S. – Biochemistry Registered Environmental Manager (REM) certification
Eric Tschudi	SSHO	Sevenson	Oversees health and safety for field activities	11 years Health and Safety experience
Ken Paisley	Regulatory Specialist/Waste Disposal Coordinator	Sevenson	Coordination of offsite waste removal	B.S. – Biology Certified Hazardous Materials Manager (CHMM) certification

QAPP Worksheet #8 Special Personnel Training Requirements Table¹

Project Function	Specialized Training By Title or Description of Course	Training Provider	Training Date	Personnel/Groups Receiving Training	Personnel Titles/Organizational Affiliation	Location of Training Records/Certificates ²
All Field	40-hour	Sevenson	Various	All field team	Sevenson staff,	Sevenson database and
Activities ³	Annual 8-hour refresher		and Updated	members	subcontractors	onsite
Sample	Trained in USEPA,	Sevenson	Various	All field team	Sevenson staff,	Resumes
Collection	USACE, and NJDEP		and	members	subcontractors	
	standard sampling methods		Updated			
Sample	Trained in Department of	Project	Various	Project Laboratory	All personnel	Laboratory
Analysis	Defense (DOD) Quality	Laboratory	and			
	Systems Manual (QSM)		Updated			
	and USEPA SW-846					
	methods					
Data Review	None – review performed	Sevenson	Various	Jennifer Singer	Sevenson Data Quality	Sevenson database
and	by an experienced project				Control Review Chemist	
Assessment	chemist					

Other tasks requiring specialized skills and training will be performed by appropriately qualified subcontractors. Training, certification, and permit requirements will be outlined in separate scopes of work for each task.



² If training records and/or certificates are on file elsewhere, document their location in this column. If training records and/or certificates do not exist or are not available, then this should be noted.

³ All field personnel will be required to be Occupational Safety and Health Administration (OSHA) trained.

QAPP Worksheet #9 Project Scoping Session Participants Sheet

Site Name: Cornell-Dubilier Electronics Superfund Site

Site Location: South Plainfield, New Jersey Project Name: Operable Unit 1 Soil Remediation Projected Date(s) of Sampling: July – December 2012

Project Manager: Kim Lickfield

Date of Session: May 2012, June 2012

Scoping Session Purpose: Discuss preparation of UFP-QAPP and subsequent responses to the USACE Project Chemist comments

Name	Title	Affiliation	Phone #	E-mail Address	Project Role
Jennifer Singer	Project Chemist	Sevenson	(716) 284-0431	jsinger@sevenson.com	UFP-QAPP Preparation
Ken Paisley	Regulatory Specialist	Sevenson	(716) 284-0431	kpaisley@sevenson.com	Regulatory Specialist
Kim Lickfield	Project Manager	Sevenson	(908) 769-5301	klickfield@sevenson.com	PM
William Zambrana	CQCSM	Sevenson	(908) 769-5301	wzambrana@sevenson.com	CQCSM
Amy Darpinian	Project Chemist	USACE	(816) 389-3897	Amy.f.darpinian@usace.army.mil	Project Chemist

<u>May 2012</u>: Sevenson internal discussion/e-mail correspondence regarding the scope of the project and completion of the UFP-QAPP.

May 5, 2012: E-mail correspondence received from Amy Darpinian following telephone conversation regarding the requirement to use the USEPA Field and Analytical Services Teaming Advisory Committee (FASTAC) process for lab procurement for project. USEPA Region 2's FASTAC analytical services strategy requires a tiered decision tree for procuring Superfund analytical services for all non-time critical data collection projects. The work described in this UFP-QAPP is time-critical, due to safety concerns with deep excavations at residential properties. Therefore, it was determined that a subcontracted laboratory would be procured that can meet the five-day turnaround time required for sample results.

<u>June 16, 2012</u>: E-mail correspondence received from Amy Darpinian regarding the requirement to submit data to the USEPA Region II database. The USEPA database does not require that backfill or waste characterization sample results be submitted for inclusion in the database; these are the only sample types expected to be collected by Sevenson. In the event that Sevenson collects any post-excavation soil samples (not anticipated at this time), the results will require submission to the USEPA Region II database.



QAPP Worksheet #10 Problem Definition

PROBLEM DEFINITION

The selected remedy involves the remediation of PCB contamination that is found on residential, commercial, and municipal properties located in the vicinity of the former Cornell-Dubilier Electronics facility. The following remedial action objectives for contaminated soil will address the human health risk and environmental concerns at residential, commercial, and municipal properties in the vicinity of the former Cornell-Dubilier Electronics facility:

- Reduce or eliminate the direct contact threat associated with contaminated soil to levels protective of current land use and considering potential future residential use.
- Prevent exposure and minimize disturbance to the surrounding community of South Plainfield during implementation of the remedial action.

USEPA is using 1 parts per million (ppm) as its Remediation Goal for this action.

A remedial design has been completed and the work included the sampling and analysis required to define the extent of the excavations to be performed under this UFP-QAPP. The remedial design had established three remediation areas to be addressed under the current action. Maps of the general locations of the areas in relation to the former Cornell-Dubilier Electronics facility, as well as specific excavation plans for each area are included in Appendix 1. Large plots of the figures included in Appendix 1 are available onsite and should be referenced for all field activities. The remediation areas are as follows:

- **Property 108, 129, 301, and 303** is located along Hamilton Boulevard and Delmore Avenue. There are eight excavation areas within the property grouping, with excavation depths ranging from 0" to 6" below ground surface (bgs), to 0" to 30" bgs (see Figure 1A, included in Appendix 1). The volume of the excavation is approximately 339 cubic yards (yd³).
- **Property 116 and 302** is located between Delmore Avenue and Arlington Avenue. There are three excavation areas within the property grouping with excavation depths ranging from 0" to 6" bgs, to 0" to 24" bgs (see Figure 2A, included in Appendix 1). The volume of the excavation is approximately 52yd³.
- **Property 128, 304, and 305** is located along Harvard Avenue, Jackson Avenue, and Garibaldi Avenue. There are four excavation areas within the property grouping with excavation depths ranging from 0" to 24" bgs, to 0" to 48" bgs (see Figure 3A, included in Appendix 1). The volume of the excavation is approximately 2,105vd³.

If additional properties are identified which require remediation under this contract, an addendum to the UFP-QAPP will be submitted, including all applicable Worksheets.

PROJECT DESCRIPTION

This task addresses the remediation of soils associated with OU-1 of the site. The USEPA signed a ROD for the site in September 2003. The objectives of the current remedial action are:

- Excavation of approximately 2,500yd³ of contaminated soil, backfilling with clean fill, and property restoration, as necessary.
- Transportation of the contaminated soil offsite for disposal, with treatment as necessary.



Constituents to be sampled include:

- Fill materials from offsite sources will be sampled and analyzed to prior to bringing it onsite.
- In-situ soil samples will be collected from the excavation areas in accordance with disposal facility criteria.
- Water removed from excavations and decontamination activities will be placed in a storage tank and analyzed in accordance with disposal facility criteria.

PROJECT DECISION CONDITIONS

Samples of topsoil and backfill materials from each offsite source will be collected and analyzed to verify that these materials do not contain contaminant levels that are hazardous to human health or the environment. Written approval from USACE will be received prior to bringing backfill or topsoil to the site. NJDEP Residential Direct Contact Soil Remediation Standards (RDCSRS; NJAC 7:26D, May 2012) will be used to determine if borrow materials are free from chemical contamination. NJDEP Unrestricted Use Standards for Radioactive Contamination (NJAC 7:28-12, September 2009) will be used to determine if borrow materials are free from naturally occurring radioactive material (NORM). If the borrow materials contain concentrations of chemical or NORM greater than the applicable criteria, the source will be rejected. A new borrow source will be located and sampled for suitability.

Soil and water samples will be collected for waste characterization and disposal facility approval. Waste characterization sample results will be compared against the 40CFR261 *Characteristics of Hazardous Waste* and 40CFR761 *PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions* to determine the disposal requirements. Any materials containing Resource Conservation and Recovery Act (RCRA) regulated constituents at concentrations greater than toxicity characteristic leachate procedure (TCLP) criteria will be disposed of as RCRA hazardous waste. Any materials containing concentrations of total PCBs greater than the regulatory standards will be disposed of as Toxic Substance Control Act (TSCA) regulated PCB remediation wastes. Any materials exceeding both criteria will be disposed of as RCRA/TSCA waste.



QAPP Worksheet #11 Project Quality Objectives/Systematic Planning Process Statements

WHO WILL USE THE DATA?

USEPA Region II, USACE-KCD, USACE-NYD, and Sevenson will use the data.

WHAT WILL THE DATA BE USED FOR?

- Backfill materials brought onsite will be sampled and analyzed to verify that the soil is clean for the intended use.
- Waste characterization samples will be collected and analyzed to assess suitability for disposal of
 waste soil, debris, and waste water. Analytical results from these samples will be submitted to
 the disposal facility to adequately classify waste materials.

WHAT TYPES OF DATA ARE NEEDED?

A table summarizing the Data Needs and Data Uses is included in Appendix 2.

HOW "GOOD" DO DATA NEED TO BE?

The data must be technically defensible and of sufficient quality as to support the project data quality objectives (DQO) which are described in Appendix 3. See Worksheet #15 which summarizes the analytes with the associated project action levels and project quantitation limits.

Analytical methods are planned to be definitive data quality. Definitive data is defined as data that are suitable for final decision making. They are generated using rigorous analytical methods such as approved USEPA SW-846 reference methods. Definitive data are not restricted in their use unless quality problems require data qualification resulting in unusable data.

WHEN WILL DATA BE COLLECTED?

Data will be collected over the duration of the project. It is expected that samples will be collected beginning in the summer 2012 per the project schedule included in Worksheet #16. The estimated number of samples to be collected at each sampling location is described in Worksheet #20.

WHO WILL COLLECT AND GENERATE THE DATA?

The Sevenson sampling team will collect all the samples. The samples will be analyzed for chemical parameters by a NJDEP and DOD Environmental Laboratory Accreditation Program (ELAP) certified subcontracted laboratory. Analytical data will be managed by Sevenson.

HOW WILL THE DATA BE REPORTED?

The data will be reported by the subcontracted laboratory to Sevenson. Sevenson will provide the data to USACE and USEPA for immediate use/decision making in an excel spreadsheet. Full laboratory data reports will be delivered directly to Sevenson for data review. Following receipt of the validated and/or reviewed data, Sevenson will generate a Quality Control Summary Report (QCSR). The QCSR will include a summary of all chemical sampling activities and will include an evaluation of the achievement of project DQO. In addition, analytical data will be reported electronically in a manner that is equivalent or may be transformed into a format consistent with the Electronic Data Deliverable (EDD) format



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specified by USEPA Region II, as documented in *Electronic Data Deliverable (EDD) Comprehensive Specification Manual 1.1 (November 2007)*, and current updates. It is anticipated that the EDD will be reported by the subcontracted laboratory in USACE Automated Data Review (ADR) format. Following review of the data using the ADR software, the data will be maintained in the USACE Environmental Data Management System (EDMS) database, which will allow for generation of the data in the USEPA Region II EDD format. Hardcopy analytical data will meet USACE EM200-1-6 *Chemical Quality Assurance for HTRW Projects (October 1997)*. In addition, as required by USEPA Region II, Sevenson will adhere to the Analytical Services Tracking System (ANSETS) reporting requirement for all work performed by the subcontracted laboratory.

HOW WILL THE DATA BE ARCHIVED?

Electronic data will be archived in the EDMS project database to be maintained by Sevenson. As stated, sample results will be provided to USEPA for final upload to their systems in a manner consistent with the requirements of *Electronic Data Deliverable (EDD) Comprehensive Specification Manual 1.1 (November 2007)*, and current updates. Hard copies of laboratory reports will also be kept in the Sevenson project files. Data will be transferred to the USACE upon completion of the project. Retrieval of data by others will be at the discretion of the USACE and the USEPA. The length of time that records will be archived will be at the discretion of the USACE and the USEPA.



QAPP Worksheet #12 Measurement Performance Criteria Table

Precision, Accuracy, Representativeness, Completeness, and Comparability

To measure and control the quality of analyses, certain QA parameters are defined and utilized in data analysis activities. These parameters are defined below.

<u>Precision.</u> Precision measures the reproducibility of data or measurements under specific conditions. Precision in a quantitative measure of the variability of a group of data compared to their average value. Duplicate precision is stated in terms of relative percent difference (RPD) of absolute difference between two measurements. Measurement of precision is dependent upon sampling technique and analytical method. Field duplicate and laboratory duplicate samples will be used to measure precision for project samples. Both sampling and analysis will be as consistent as possible.

For chemical determinations, laboratory and field duplicate precision is stated in terms of RPD of absolute difference between two measurements. For a pair of measurements, RPD (or absolute difference) will be used, as presented below:

$$RPD = \left(\frac{|X_1 - X_2|}{(X_1 + X_2)}\right) \times 100$$

Where: X_1 and X_2 = the two replicate values

For radiological determinations, normalized absolute difference (NAD) is used to statistically determine the number of units of standard error of difference between means and the measured results differ from zero. NAD is calculated as presented below:

$$NAD = \frac{\left| sample - replicate \right|}{\sqrt{\left(U_{sample}\right)^2 + \left(U_{replicate}\right)^2}}$$

Where: Sample = concentration in the first sample (original)
Replicate = concentration in second sample (replicate)

 U_{sample} = uncertainty of the sample $U_{\text{replicate}}$ = uncertainty of the replicate



If the RPD or NAD acceptance criteria for field or laboratory duplicate samples are not achieved, field-sampling procedures will be reviewed with sampling personnel. In addition, the laboratory will be made aware of the discrepancy such that they may review internal sample preparation and analysis procedures.

<u>Accuracy.</u> Accuracy measures the bias in a measurement system. Sources of error include the sampling process, field contamination, preservation, handling, shipping, sample matrix, sample preparation, and analysis technique. Analytical accuracy will be assessed through surrogate spikes, matrix spikes, and laboratory control samples. In general, accuracy is measured in terms of percent recovery:

$$\%R = \frac{|SSR - SR| \times 100}{SA}$$

Where: SSR = measured value of the spiked sample

SR = measured value of the unspiked sample

SA = known amount of the spike in the sample

Representativeness. Representativeness expresses the degree to which data accurately and precisely reflects a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness is a qualitative parameter that is dependent upon the proper design and implementation of the sampling program and proper laboratory protocol. The sampling design created for this project was designed to provide data representative of site conditions. During development of the sampling designs, consideration was give to the past history of contamination at the site, existing analytical data, physical setting, and process. Representativeness will be satisfied by determining that the UFP-QAPP is followed, proper sampling techniques, preservation, and handling are used, proper analytical procedures are followed, and holding times for the samples are not exceeded in the laboratory.

<u>Completeness.</u> Completeness is a measure of the amount of usable data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. It is expected that the laboratory used for this project will provide data that meet the QC acceptance criteria for 90 percent, or more, of all samples analyzed. Following the completion of the analytical testing, the percent completeness will be calculated using the following equation:

$$%C = \left(\frac{V}{N}\right) \times 100$$

Where: V = number of measurements judged valid N = total number of sample results

The data review process will be used to determine the quality and quantity of usable analytical data generated.



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The completeness acceptance criterion for samples collected in the field will be 90 percent of the quantity of samples planned for collected in the UFP-QAPP. Corrective action may be implemented to recollect samples where necessary and possible (e.g., modifying a planned sample location, sample jars broken during shipment). Laboratory notification of sample receipt conditions will be used to determine, as soon as possible, whether any problems during sample shipment would necessitate recollection of samples.

<u>Comparability.</u> Comparability expresses the confidence with which one data set can be compared to another. The extent to which existing and planned analytical data will be comparable depends on the similarity of sampling and analytical methods. The procedures used to obtain the planned analytical data are expected to provide comparable data. The procedures used will be USEPA promulgated methods, well recognized and commonly used for environmental investigations.

<u>Desired Method Sensitivity.</u> Depending upon the use to the data and the type of test parameter, specific quantitation limits (QLs) will be required. Worksheet #15 lists the required QLs. In each case, the QLs are well below the project action levels which are also listed or referenced.

QAPP Worksheet #12-1 Measurement Performance Criteria Table

Matrix	Offsite Backfill
Analytical Group	Metals, Cyanide
Concentration Level	Low

Sampling Procedure	Analytical Method/SOP	Data Quality Indicators (DQIs)	Measurement Performance Criteria (MPC)	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-1	100.0004	Accuracy	Recovery: 80-120%	Matrix Spike (MS)	A
	100.0012	Precision	RPD: ≤20%	Laboratory Duplicate	A
	100.0111	Accuracy	Recovery: 80-120%	Laboratory Control Sample (LCS)	A
		Accuracy	4±2°C	Temperature Blank	S
		Sensitivity, Accuracy	No analytes detected > ½ reporting limit (RL) and greater than 1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater)	Method Blank	A
		Sensitivity, Accuracy	No analytes detected > limit of detection (LOD)	Calibration Blank	A
		Accuracy	ICS-A: Absolute value of concentration for all non-spiked analytes <lod ics-ab:="" of="" td="" true="" value<="" within="" ±20%=""><td>Interference Check Sample (ICS; method SW846 6010C only)</td><td>A</td></lod>	Interference Check Sample (ICS; method SW846 6010C only)	A
		Precision, Accuracy	Five-fold dilution must agree within ±10% of the original sample	Serial Dilution	A
		Accuracy	Recovery: 75-125%	Post-Digestion Spike (PDS; method SW846 6010C only)	A
		Accuracy	Recovery: 85-115%	Recovery Test (method SW846 7471B only)	A
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.



QAPP Worksheet #12-2 Measurement Performance Criteria Table

Matrix	Offsite Backfill
Analytical Group	VOCs, Semi-Volatile Organic Compounds (SVOCs), Pesticides, PCBs
Concentration Level	Trace (VOCs,), Low (SVOCs, Pesticides, PCBs)

Sampling Procedure	Analytical Method/SOP	DQIs	MPC ¹	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-1	60.0003	Accuracy	Must meet laboratory in-house control limits. (Appendix 4)	LCS	A
	70.0011 90.0012	Accuracy	Must meet laboratory in-house control limits. (Appendix 4)	MS/Matrix Spike Duplicate (MSD)	A
		Accuracy	Must meet laboratory in-house control limits. (Appendix 4)	Surrogate Spikes	A
		Accuracy	4±2°C	Temperature Blank	S
		Sensitivity, Accuracy	No analytes detected > ½ RL and greater than 1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater)	Method Blank	A
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.



QAPP Worksheet #12-3 Measurement Performance Criteria Table

Matrix	Offsite Backfill
Analytical Group	Radiological Parameters
Concentration Level	Low

Sampling Procedure	Analytical Method/SOP	DQIs	MPC ¹	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-1	PGH-R-023-5	Precision	NAD≤3.92	Laboratory Duplicate	A
		Accuracy	Must meet laboratory inhouse control limits. (Appendix 4)	LCS	A
		Sensitivity	≤RL	Method Blank	A
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #12-4 Measurement Performance Criteria Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	TCLP Metals (solid waste characterization to also include copper, nickel, and zinc)
Concentration Level	Low to Medium

Sampling Procedure	Analytical Method/SOP	DQIs	MPC ¹	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-2	100.0012	Accuracy	Recovery: 80-120%	MS	A
and #17-3	100.0111	Precision	RPD: ≤20%	Laboratory Duplicate	A
		Accuracy	Recovery: 80-120%	LCS	A
		Accuracy	4±2°C	Temperature Blank	S
		Sensitivity, Accuracy	No analytes detected > ½ RL and greater than 1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater)	Method Blank	A
		Sensitivity, Accuracy	No analytes detected > LOD	Calibration Blank	A
		Accuracy	ICS-A: Absolute value of concentration for all non-spiked analytes <lod ics-ab:="" of="" td="" true="" value<="" within="" ±20%=""><td>ICS (method SW846 6010C only)</td><td>A</td></lod>	ICS (method SW846 6010C only)	A
		Precision, Accuracy	Five-fold dilution must agree within ±10% of the original sample	Serial Dilution	A
		Accuracy	Recovery: 75-125%	PDS (method 846 6010C only)	A
		Accuracy	Recovery: 85-115%	Recovery Test (method SW846 7471B only)	A
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.



QAPP Worksheet #12-5 Measurement Performance Criteria Table

Matrix Solid and Liquid Waste Characterization		
Analytical Group	TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, PCBs	
Concentration Level	Low to High	

Sampling Procedure	Analytical Method/SOP	DQIs	MPC ¹	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-2 and #17-3	60.0003 60.0006	Accuracy	Must meet laboratory in-house control limits. (Appendix 4)	LCS	A
	60.0034 70.0011	Accuracy	Must meet laboratory in-house control limits. (Appendix 4)	MS/MSD	A
	90.0012	Accuracy	Must meet laboratory in-house control limits. (Appendix 4)	Surrogate Spikes	A
		Accuracy	4±2°C	Temperature Blank	S
		Sensitivity, Accuracy	No analytes detected > ½ RL and greater than 1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater)	Method Blank	A
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.



QAPP Worksheet #12-6 Measurement Performance Criteria Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	Reactivity (Sulfide and Cyanide)
Concentration Level	Low

Sampling Procedure	Analytical Method/SOP	DQIs	MPC ¹	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheets #17-2 and #17-3	100.0015	Accuracy	Must meet laboratory inhouse control limits. (Appendix 4)	Laboratory Duplicate	A
		Accuracy	Must meet laboratory inhouse control limits. (Appendix 4)	LCS	A
		Accuracy	4±2°C	Temperature Blank	S
		Sensitivity, Accuracy	All target compounds ≤ RL	Method Blank	A
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #12-7 Measurement Performance Criteria Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	Ignitability
Concentration Level	NA

Sampling Procedure	Analytical Method/SOP	DQIs	MPC ¹	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-2 and #17-3	100.0024	Accuracy	Must meet laboratory inhouse control limits. (Appendix 4)	Laboratory Duplicate	A
		Accuracy	Must meet laboratory inhouse control limits. (Appendix 4)	LCS	A
		Accuracy	4±2°C	Temperature Blank	S
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

¹ The laboratory will be required to achieve their method-specific control limit criteria.

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QAPP Worksheet #12-8 Measurement Performance Criteria Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	рН
Concentration Level	NA

Sampling Procedure	Analytical Method/SOP	DQIs	MPC	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Worksheet #17-2 and #17-3	100.0112	Sensitivity	Must agree within ±0.10 pH unit of true value	Initial Calibration Verification	A
		Sensitivity	±0.05 pH unit of the temperature adjusted pH value	Continuing Calibration Verification	A
		Precision	Must agree within ±0.10 pH units	Laboratory Duplicate	S&A
		Accuracy	4±2°C	Temperature Blank	S
		Completeness	≥90%	Data Assessment	S&A
		Comparability	Similar units and methods	Data results review	S&A

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QAPP Worksheet #13 Secondary Data Criteria and Limitations Table

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Organization, Data Types, Data Generation/Collection Dates)	How Data Will Be Used	Limitations on Data Use
Specifications and Drawings	Arcadis/Malcolm Pirnie, 2012	Arcadis/Malcolm Pirnie	Historical data that will define the limits of the soil excavations	None for the current intended project objectives
Historical Data	USEPA Region II, September 2003. "Record of Decision" Cornell- Dubilier Electronics Superfund Site, OU-1, South Plainfield, New Jersey.	Foster Wheeler Environmental Corporation, August 2001. "Final Remedial Investigation Report for Operable Unit 1 (OU-1) Offsite Soils, for Cornell-Dubilier Electronics Superfund Site, South Plainfield, Middlesex County, New Jersey."	Historical data that will define the limits of the soil excavations	None for the current intended project objectives
		Foster Wheeler Environmental Corporation, August 2001. "Final Feasibility Study Report for Operable Unit 1 (OU-1) Offsite Soils, for Cornell-Dubilier Electronics Superfund Site, South Plainfield, Middlesex County, New Jersey."		

QAPP Worksheet #14 Summary of Project Tasks

Sampling Tasks: Samples will be collected for analytical parameters from the locations described in Worksheets #17 and #18 per the instructions in Worksheet #17. The following list represents the types of samples to be collected during the course of field activities:

- Offsite Topsoil/Backfill Sampling. Backfill material obtained from offsite sources will be tested for chemical parameters prior to use in order to determine that the materials do not present a threat to human health and/or the environment.
- Solid Waste Characterization Sampling. Waste characterization samples will be collected from excavated soil and debris for waste characterization and disposal facility approval. More specific information on solid waste disposal can be found in the Transportation and Disposal Plan, submitted under separate cover.
- Wastewater Characterization Sampling. Wastewater generated during site activities (e.g., decontamination water, storm water) will be containerized in an aboveground storage tank and samples will be collected to determine the waste management approach.

Analysis Tasks: Analytical methodologies are described in Worksheets #19 and #23. The following list represents the analysis required for each sample type to be collected during the course of field activities:

- Offsite Topsoil/Backfill Sampling. Laboratory analysis will be performed on these samples for metals, cyanide, VOCs, SVOCs, pesticides, PCBs, and radiological parameters, according to NJAC 7:26D (May 2012), NJAC 7:28-12 (September 2009), and NJAC 7:26E (May 2012).
- Solid Waste Characterization Sampling. Laboratory analysis will be performed on these samples for corrosivity, ignitability, hydrogen cyanide reactivity, hydrogen sulfide reactivity, TCLP VOCs, TCLP SVOCs, TCLP pesticides, TCLP herbicides, TCLP metals, and total PCBs. Additional analyses may be performed at the direction of the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the list of required laboratory analyses.
- Wastewater Characterization Sampling. Laboratory analysis will be performed on these samples for corrosivity, ignitability, hydrogen cyanide reactivity, hydrogen sulfide reactivity, TCLP VOCs, TCLP SVOCs, TCLP pesticides, TCLP herbicides, TCLP metals, and total PCBs. Additional analyses may be performed at the direction of the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the list of required laboratory analyses.

Quality Control Tasks: The analytical laboratories will be required to analyze QC samples listed in the documents and procedures give in Worksheet #28. Laboratory analytical data will undergo internal reviews and validation prior to release of the analytical data reports and EDDs. Sevenson will also review laboratory analytical data as described in Worksheets #31 and #36.

In addition, the field sampling team will be required undergo internal QC assessments, including review of field sampling activities, documentation, and health and safety compliance as described in Worksheet #31.

Secondary Data: Reports and analytical data associated with prior investigations are defined in Worksheet #13. These documents have been reviewed by Sevenson and their contents utilized in the development of the UFP-QAPP for the current scope of work.



Data Management Tasks: Both hard copy and electronic data deliverables will be tracked, stored, handled, and managed. All data, field notes, and analytical information will be placed in an electronic database which will be maintained in the Sevenson corporate office. All electronic data will be backed up. Hardcopies of data will be stored in project files.

Documentation and Records: All hardcopy data (e.g., field notebooks, photos, hard copies of chain of custody forms, airbills, etc.) will be taken to the Sevenson corporate office and kept in the project files.

Assessment/Audit Tasks: Planned project assessments are defined in Worksheet #31. Audits of field staff compliance with project standard operating procedures (SOPs) will be performed within the first week of sample collection and periodically thereafter as determined by the Project CQCSM or the field team leader. Checklists used during field audits, including task-specific quality control checklists, are included in Appendix 5. Audits of laboratory compliance with SOPs will be performed on a periodic basis as determined by the laboratory QA manager. In addition, laboratory data will be audited as part of the data validation process as defined in this UFP-QAPP. The laboratory may be audited onsite by Sevenson at any time based on need determined by the Sevenson project chemist.

Subcontracted laboratories will maintain current requirements for certification required by NJDEP and DOD ELAP.

Data Review Tasks: Chemical data that is generated will be reviewed by Sevenson against the criteria in the applicable analytical SOP. See also Worksheets #23, #28, #35, and #36.

Data review by Sevenson will include, but may not be limited to, the following parameters:

- Data completeness
- Holding time
- Laboratory control samples
- Method blanks
- Surrogate spikes
- Matrix spike and matrix spike duplicates
- Laboratory and field duplicates
- Initial and continuing calibration (PCBs only)

A QCSR will be provided to summarize the results of the data review findings and to present conclusions regarding the usability of the data for project objectives. The report will assess the accuracy, precision, representativeness, comparability, and completeness of the data generated. The report will focus on out of control data results and present a table of non-compliant results that exceeded some QC requirement.



QAPP Worksheet #15-1 Reference Limits and Evaluation Table

Matrix: Offsite Backfill and Topsoil

Analytical Group: VOCs **Concentration Level:** Trace

Concentration Level				SW-846 8260B				
Analyte	CAS Number	Project Action Limit (μg/Kg) ¹	Project Quantitation Limit Goal	Analyti	cal Method ³	Achievable Lim	•	
	Number		$(\mu g/Kg)^2$	MDLs (μg/Kg)	Method QLs (μg/Kg)	MDLs (μg/Kg)	QLs (μg/Kg)	
Acetone	67-64-1	70,000,000	10	NA	NA	3.5	5	
Acrolein	107-02-8	500	500	NA	NA	5.1	25	
Acrylonitrile	107-13-1	900	500	NA	NA	1.2	5	
Benzene	71-43-2	2,000	5	NA	NA	0.86	5	
Bromodichloromethane	75-27-4	1,000	5	NA	NA	1.1	5	
Bromoform	75-25-2	81,000	5	NA	NA	1.4	5	
Bromomethane	74-83-9	25,000	5	NA	NA	1.4	5	
2-Butanone	78-93-3	3,100,000	10	NA	NA	2.8	5	
Carbon Disulfide	75-15-0	7,800,000	500	NA	NA	0.66	5	
Carbon Tetrachloride	56-23-5	600	5	NA	NA	1.1	5	
Chlorobenzene	108-90-7	510,000	5	NA	NA	0.96	5	
Chloroethane	75-00-3	220,000	5	NA	NA	1.7	5	
Chloroform	67-66-3	600	5	NA	NA	0.82	5	
Chloromethane	74-87-3	4,000	5	NA	NA	0.74	5	
Dibromochloromethane	124-48-1	3,000	5	NA	NA	0.77	5	
1,2-Dibromo-3-chloropropane	96-12-8	80	5	NA	NA	0.67	5	
1,2-Dibromoethane	106-93-4	8	5	NA	NA	1.5	5	
1,2-Dichlorobenzene	95-50-1	5,300,000	5	NA	NA	0.44	5	
1,3-Dichlorobenzene	541-73-1	5,300,000	5	NA	NA	0.30	5	
1,4-Dichlorobenzene	106-46-7	5,000	5	NA	NA	0.25	5	
Dichlorodifluoromethane	75-71-8	490,000	5	NA	NA	3.6	5	
1,1-Dichloroethane	75-34-3	8,000	5	NA	NA	0.94	5	
1,2-Dichloroethane	107-06-2	900	5	NA	NA	0.9	5	
1,1-Dichloroethene	75-35-4	11,000	5	NA	NA	0.98	5	
cis-1,2-Dichloroethene	156-59-2	230,000	5	NA	NA	1.2	5	
trans-1,2-Dichloroethene	156-60-5	300,000	5	NA	NA	1.1	5	

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		Project	Project		SW-84	6 8260B	I uge
Analyte	CAS Number	Action Limit	Quantitation	Analytic	al Method ³	Achievable Lal	ooratory Limits
Analyte	CAS Number	$(\mu g/Kg)^1$	Limit Goal	MDLs	Method QLs	MDLs	QLs (µg/Kg)
			$(\mu g/Kg)^2$	(µg/Kg)	(µg/Kg)	(µg/Kg)	QLS (µg/Mg)
1,2-Dichloropropane	78-87-5	2,000	5	NA	NA	1.2	5
1,3-Dichloropropene (cis and	10061-01-5 (cis)	2,000	5	NA	NA	0.62 (cis)	5 (cis)
trans)	10061-02-6 (trans)	2,000	3	IVA	NA	1 (trans)	5 (trans)
Ethylbenzene	100-41-4	7,800,000	5	NA	NA	1.2	5
Methyl Acetate	79-20-9	78,000,000	5	NA	NA	1.4	5
Methylene Chloride	75-09-2	34,000	5	NA	NA	0.64	5
Methyl tert-butyl ether	1634-04-4	110,000	5	NA	NA	0.77	5
Styrene	100-42-5	90,000	5	NA	NA	1.1	5
Tertiary Butyl Alcohol	75-65-0	1,400,000	100	NA	NA	5	10
1,1,2,2-Tetrachloroethane	79-34-5	1,000	5	NA	NA	1.1	5
Tetrachloroethene	127-18-4	2,000	5	NA	NA	1.2	5
Toluene	108-88-3	6,300,000	5	NA	NA	0.54	5
1,2,4-Trichlorobenzene	120-82-1	73,000	5	NA	NA	0.33	5
1,1,1-Trichloroethane	71-55-6	290,000	5	NA	NA	0.76	5
1,1,2-Trichloroethane	79-00-5	2,000	5	NA	NA	0.66	5
Trichloroethene	79-01-6	7,000	5	NA	NA	0.77	5
Trichlorofluoromethane	75-69-4	23,000,000	5	NA	NA	2.6	5
Vinyl Chloride	75-01-4	700	5	NA	NA	1	5
Xylenes (total)	1330-20-7	12,000,000	5	NA	NA	1.1	5



¹ Project action limits are based upon NJDEP RDCSRS (NJAC 7:26D, May 2012).
² The project quantitation limits are based the soil practical quantitation limit (PQL) listed in NJDEP RDCSRS (NJAC 7:26D, May 2012).

³ Analytical method detection limits (MDLs) and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

QAPP Worksheet #15-2 Reference Limits and Evaluation Table

Matrix: Offsite Backfill and Topsoil

Analytical Group: SVOCs Concentration Level: Low

Concentration Level.			D : (0 /://		SW-846 8270D				
A m a lint a	CAS	Project Action	Project Quantitation	Analytic	al Method ³	Achievable Lal	oratory Limits		
Analyte	Number	Limit (µg/Kg) ¹	Limit Goal (µg/Kg)²	MDLs	Method QLs	MDLs (μg/Kg)	QLs (µg/Kg)		
				$(\mu g/Kg)$	(µg/Kg)		· ·		
Acenaphthene	83-32-9	3,400,000	200	NA	660	8.4	170		
Acenaphthylene	208-96-8	NS	200	NA	660	10	170		
Acetophenone	98-86-2	2,000	200	NA	ND	20	170		
Anthracene	120-12-7	17,000,000	200	NA	660	19	170		
Atrazine	1912-24-9	210,000	200	NA	ND	24	170		
Benzaldehyde	100-52-7	6,100,000	200	NA	ND	49	170		
Benzidine	92-87-5	700	700	NA	NA	61	170		
Benzo(a)anthracene	56-55-3	600	200	NA	660	17	170		
Benzo(a)pyrene	50-32-8	200	200	NA	660	25	170		
Benzo(b)fluoranthene	205-99-2	600	200	NA	660	46	170		
Benzo(g,h,i)perylene	191-24-2	380,000,000	200	NA	660	17	170		
Benzo(k)fluoranthene	207-08-9	6,000	200	NA	660	19	170		
1,1'-Biphenyl	92-52-4	3,100,000	200	NA	ND	17	170		
Bis(2-chloroethyl)ether	111-44-4	400	200	NA	660	74	170		
Bis(2-chloroisopropyl)ether	108-60-1	23,000	200	NA	660	0.33	170		
Bis(2-ethylhexyl)phthalate	117-81-7	35,000	200	NA	660	8.6	170		
Butyl benzyl phthalate	85-68-7	1,200,000	200	NA	660	6.3	170		
Caprolactam	105-60-2	31,000,000	200	NA	ND	25	170		
Carbazole	86-74-8	24,000	200	NA	ND	10	170		
2-Chlorophenol	95-57-8	310,000	200	NA	660	17	170		
Chrysene	218-01-9	62,000	200	NA	660	25	170		
Dibenzo(a,h)anthracene	53-70-3	200	200	NA	660	5.8	170		
3,3'-Dichlorobenzidine	91-94-1	1,000	200	NA	1,300	52	170		
2,4-Dichlorophenol	120-83-2	180,000	200	NA	660	17	170		
Diethyl phthalate	84-66-2	49,000,000	200	NA	660	7.8	170		
2,4-Dimethylphenol	105-67-9	1,200,000	200	NA	660	53	170		
di-n-Butyl phthalate	84-74-2	6,100,000	200	NA	ND	5.8	170		

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		D • • • •	Project		SW-84	46 8270D	1 age
	CAGNA	Project Action	Quantitation Limit	Analytic	al Method ³	Achievable La	boratory Limits
Analyte	CAS Number	Limit (µg/Kg) ¹	Goal (µg/Kg)²	MDLs (μg/Kg)	Method QLs (μg/Kg)	MDLs (μg/Kg)	QLs (µg/Kg)
4,6-Dinitro-2-methylphenol ⁴	534-52-1	6,000	300	NA	3,300	30	330
2,4-Dinitrophenol ⁴	51-28-5	120,000	300	NA	3,300	100	330
2,4-Dinitrotoluene	121-14-2	700	200	NA	660	6	170
2,6-Dinitrotoluene	606-20-2	700	200	NA	660	8.8	170
di-n-Octylphthalate	117-84-0	2,400,000	200	NA	ND	44	170
1,2-Diphenylhydrazine	122-66-7	700	700	NA	NA	170	330
Fluoranthene	206-44-0	2,300,000	200	NA	660	18	170
Fluorene	86-73-7	2,300,000	200	NA	660	7.8	170
Hexachlorobenzene	118-74-1	300	200	NA	660	7.9	170
Hexachlorobutadiene	87-68-3	6,000	200	NA	660	32	170
Hexachlorocyclopentadiene	77-47-4	45,000	200	NA	660	32	170
Hexachloroethane	67-72-1	35,000	200	NA	660	96	170
Indeno(1,2,3-cd)pyrene	193-39-5	600	200	NA	660	8.9	170
Isophorone	78-59-1	510,000	200	NA	660	51	170
2-Methylnaphthalene	91-57-6	230,000	170	NA	660	20	170
2-Methylphenol	95-48-7	310,000	200	NA	660	23	170
4-Methylphenol	106-44-5	31,000	200	NA	660	22	170
Naphthalene	91-20-3	6,000	200	NA	660	23	170
2-Nitroaniline ⁴	88-74-4	39,000	300	NA	3,300	5.5	330
Nitrobenzene	98-95-3	31,000	200	NA	660	18	170
N-Nitrosodimethylamine	62-75-9	700	700	NA	NA	36	170
N-Nitroso-di-n-propylamine	621-64-7	200	200	NA	660	68	170
N-Nitrosodiphenylamine	86-30-6	99,000	200	NA	660	47	170
Pentachlorophenol ⁴	87-86-5	3,000	300	NA	3,300	82	330
Phenanthrene	85-01-8	NS	200	NA	660	6.9	170
Phenol	108-95-2	18,000,000	200	NA	660	29	170
Pyrene	129-00-0	1,700,000	200	NA	660	7.4	170
2,4,5-Trichlorophenol ⁴	95-95-4	6,100,000	200	NA	660	53	330
2,4,6-Trichlorophenol	88-06-2	19,000	200	NA	660	26	170

¹ Project action limits are based upon NJDEP RDCSRS (NJAC 7:26D, May 2012). "NS" indicates that there is no criterion listed for the analyte.



² The project quantitation limits are based the soil PQL listed in NJDEP RDCSRS (NJAC 7:26D, May 2012).

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³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

⁴ The project quantitation limit goal is less than the achievable laboratory quantitation limit. The achievable laboratory quantitation limit is low enough to meet the project action limit requirements.

QAPP Worksheet #15-3 Reference Limits and Evaluation Table

Matrix: Offsite Backfill and Topsoil **Analytical Group:** Pesticides **Concentration Level:** Low

Concenti ation 1			Project	SW-846 8081B					
Analyte	CAS Number	Project Action	Quantitation	Analytical	l Method ³	Achievable Laboratory Limits			
Analyte	CAS Number	Limit (µg/Kg) ¹	Limit Goal (µg/Kg) ²	MDLs (µg/Kg)	Method QLs (μg/Kg)	MDLs (µg/Kg)	QLs (µg/Kg)		
Aldrin	309-00-2	40	2	NA	NA	0.15	1.7		
Chlordane (alpha and gamma)	57-74-9	200	2	NA	NA	0.12 (alpha-) 0.11 (gamma-)	1.7 (alpha-) 1.7 (gamma-)		
4,4'-DDD ⁴	72-54-8	3,000	3	NA	NA	0.28	3.3		
4,4'-DDE ⁴	72-55-9	2,000	3	NA	NA	0.24	3.3		
4,4'-DDT ⁴	50-29-3	2,000	3	NA	NA	0.25	3.3		
Dieldrin ⁴	60-57-1	40	3	NA	NA	0.24	3.3		
Endosulfan I and Endosulfan II ⁴	115-29-7	470,000	3	NA	NA	0.035 (-I) 0.089 (-II)	1.7 (-I) 3.3 (-II)		
Endosulfan sulfate ⁴	1031-07-8	470,000	3	NA	NA	0.23	3.3		
Endrin ⁴	72-20-8	23,000	3	NA	NA	0.25	3.3		
Alpha-BHC	319-84-6	100	2	NA	NA	0.11	1.7		
Beta-BHC	319-85-7	400	2	NA	NA	0.13	1.7		
Heptachlor	76-44-8	100	2	NA	NA	0.11	1.7		
Heptachlor epoxide	1024-57-3	70	2	NA	NA	0.11	1.7		
Gamma-BHC	58-89-9	400	2	NA	NA	0.11	1.7		
Methoxychlor	72-43-5	390,000	20	NA	NA	2.2	17		
Toxaphene	8001-35-2	600	200	NA	NA	5.5	170		



¹ Project action limits are based upon NJDEP RDCSRS (NJAC 7:26D, May 2012).
² The project quantitation limits are based the soil PQL listed in NJDEP RDCSRS (NJAC 7:26D, May 2012).

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

⁴ The project quantitation limit goal is less than the achievable laboratory quantitation limit. The achievable laboratory quantitation limit is low enough to meet the project action limit requirements.

QAPP Worksheet #15-4 Reference Limits and Evaluation Table

Matrix: Offsite Backfill and Topsoil

Analytical Group: PCBs **Concentration Level:** Low

				SW-846 8082A				
Analyte	CAS Number Project Action		Project Quantitation	Analytical	Method ³	Achievable Laboratory Limits ⁴		
		Limit (μg/Kg) ¹	Limit Goal (μg/Kg) ²	MDLs (µg/Kg)	Method QLs (μg/Kg) ³	MDLs (μg/Kg)	QLs (µg/Kg)	
Aroclor 1016	12674-11-2			0.057-0.070	38-47	2.5	33	
Aroclor 1221	11104-28-2			0.057-0.070	38-47	12	33	
Aroclor 1232	11141-16-5			0.057-0.070	38-47	1.9	33	
Aroclor 1242	53469-1-9	200	30	0.057-0.070	38-47	1.7	33	
Aroclor 1248	12672-29-6			0.057-0.070	38-47	3.8	33	
Aroclor 1254	11097-69-1			0.057-0.070	38-47	1.9	33	
Aroclor 1260	11096-82-5			0.057-0.070	38-47	2.1	33	

Project action limits are based upon NJDEP RDCSRS (NJAC 7:26D, May 2012).



² The project quantitation limits are based the soil PQL listed in NJDEP RDCSRS (NJAC 7:26D, May 2012).

³ Analytical MDLs and QLs are those documented in validated methods. Per SW-846 Method 8082, the Estimated Quantitation Limit is the MDL times a factor (use 670 for low-concentration soil).

⁴ The project quantitation limit goal is less than the achievable laboratory quantitation limit. The achievable laboratory quantitation limit is low enough to meet the project action limit requirements.

QAPP Worksheet #15-5 Reference Limits and Evaluation Table

Matrix: Offsite Backfill and Topsoil **Analytical Group:** Metals and Cyanide

Concentration Level: Low

			Duoinat	SW-846 6010C/7471B					
Analyte	CAS Number	Project Action	Project Quantitation Limit	Analytica	l Method ³	Achievable Lab	oratory Limits		
Analyte	CAS Number	Limit (mg/Kg) ¹	Goal (mg/Kg) ²	MDLs (mg/Kg)	MDLs (mg/Kg) Method QLs (mg/Kg) MDLs (mg/Kg)				
Aluminum	7429-90-5	78,000	20	NA	NA	1.2	10		
Antimony	7440-36-0	31	6	NA	NA	0.18	1		
Arsenic	7440-38-2	19	1	NA	NA	0.16	1		
Barium	7440-39-3	16,000	20	NA	NA	0.38	10		
Beryllium	7440-41-7	16	0.5	NA	NA	0.002	0.25		
Cadmium	7440-43-9	78	0.5	NA	NA	0.013	0.25		
Chromium	7440-47-3	240	2	NA	NA	0.054	1		
Cobalt	7440-48-4	1,600	5	NA	NA	0.035	2.5		
Copper	7440-50-8	3,100	3	NA	NA	0.42	1.5		
Cyanide	57-12-5	1,600	3	NA	NA	NA	2.5		
Lead	7439-92-1	400	1	NA	NA	0.14	0.5		
Manganese ⁴	7439-96-5	11,000	2	NA	NA	0.47	2.5		
Mercury	7439-97-6	23	0.1	NA	NA	0.0048	0.033		
Nickel	7440-02-0	1,600	4	NA	NA	0.066	2.5		
Selenium	7782-49-2	390	4	NA	NA	0.78	1.5		
Silver ⁴	7440-22-4	390	1	NA	NA	0.079	1.5		
Thallium	7440-28-0	5	3	NA	NA	0.24	1		
Vanadium	7440-62-2	78	5	NA	NA	0.038	2.5		
Zinc	7440-66-6	23,000	6	NA	NA	0.27	2.5		



¹ Project action limits are based upon NJDEP RDCSRS (NJAC 7:26D, May 2012).
² The project quantitation limits are based the soil PQL listed in NJDEP RDCSRS (NJAC 7:26D, May 2012).

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

⁴ The project quantitation limit goal is less than the achievable laboratory quantitation limit. The achievable laboratory quantitation limit is low enough to meet the project action limit requirements.

QAPP Worksheet #15-6 Reference Limits and Evaluation Table

Matrix: Offsite Backfill and Topsoil Analytical Group: Radiological Parameters

Concentration Level: Low

			Project	HASL-300 (or equivalent gamma spectroscopy method)					
Analyte	CAS Number	Project Action	Quantitation	Analytica	l Method ²	Achievable Laboratory Limits			
Analyte	CAS Number	Limit (pCi/g) ¹	Limit Goal (pCi/g)	MDLs (pCi/g)	Method QLs (pCi/g)	MDLs (pCi/g)	QLs (pCi/g) ³		
Ac-228	14331-83-0	NA ^{4,7}	1	NA	NA	NA	1		
Th-232	7440-29-1	2	1	NA	NA	NA	1		
Bi-214	14733-03-0	NA ^{5,7}	1	NA	NA	NA	1		
Pb-214	15067-28-4	NA ^{5,7}	1	NA	NA	NA	1		
Ra-226	13982-63-3	2	1	NA	NA	NA	1		
Th-234	15065-10-8	NA ^{6,7}	1	NA	NA	NA	1		
U-238	24678-82-8	14	1	NA	NA	NA	1		

¹ Project action limits obtained from NJAC 7:28-12 (September 2009).



² Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and method QLs are not provided in the most recent version of the method for the parameters and matrices of interest.

³ The achievable laboratory limit is based on the highest expected minimum detectable activity (MDA). MDAs are calculated by the laboratory for each sample analyzed.

⁴ The Ac-228 result will be reported by the laboratory and will be used to quantitate the Th-232 activity. There is no action limit listed in NJAC 7:28-12 for Ac-228.

⁵ The Bi-214 and Pb-214 results will be reported by the laboratory and will be used to quantitate the Ra-226 activity. There are no action limits listed in NJAC 7:28-12 for Bi-214 and Pb-214.

⁶ The Th-234 result will be reported by the laboratory and will be used to quantitate the U-238 activity. There is no action limit listed in NJAC 7:28-12 for Th-234.

⁷ Uranium, thorium, and radium decay chain daughter isotopes are assumed to be in secular equilibrium with the parent isotope.

QAPP Worksheet #15-7 Reference Limits and Evaluation Table

Matrix: Solid and Liquid Waste Characterization

Analytical Group: TCLP Metals Concentration Level: Low to Medium

					SW-846 6010	OC/7470A		
Analyte ¹	CAS Number	Project Action Limit (mg/L) ²	Project Quantitation Limit Goal (mg/L) ³	Analytical Method ⁴		Achievable Laboratory Limits		
	Number	(mg/L)	(mg/L)	MDLs (mg/L)	Method QLs (mg/L)	MDLs (mg/L)	QLs (mg/L)	
Arsenic	7440-38-2	5.00	0.5	NA	NA	0.0053	0.02	
Barium	7440-39-3	100.00	10	NA	NA	0.0085	0.20	
Cadmium	7440-43-9	1.00	0.1	NA	NA	0.00014	0.005	
Chromium	7440-47-3	5.00	0.5	NA	NA	0.0011	0.02	
Lead	7439-92-1	5.00	0.5	NA	NA	0.0022	0.01	
Mercury	7439-97-6	0.20	0.02	NA	NA	0.000016	0.0002	
Selenium	7782-49-2	1.00	0.1	NA	NA	0.0066	0.03	
Silver	7440-22-4	5.00	0.5	NA	NA	0.00059	0.03	
Copper	7440-50-8	NS	-	NA	NA	0.0036	0.03	
Nickel	7440-02-0	NS	-	NA	NA	0.00085	0.05	
Zinc	7440-66-6	NS	-	NA	NA	0.0049	0.05	



¹Copper, nickel, and zinc are only required for solid waste characterization samples.
² Project action limits are based upon RCRA. This information will be used for disposal. NS indicates that there is no criterion listed for the analyte.

³ The project quantiation limits are based upon one-tenth of the RCRA limits.

⁴ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

QAPP Worksheet #15-8 Reference Limits and Evaluation Table

Matrix: Solid and Liquid Waste Characterization

Analytical Group: TCLP VOCs **Concentration Level:** Low

				SW-846 8260B				
Analyte	CAS Number	Project Action	Project Quantitation Limit	Analyti	cal Method ³		Achievable Laboratory Limits	
Analyte	CAS Number	Limit (µg/L) ¹	Goal (μg/L) ²	MDLs (μg/L)	Method QLs (μg/L)	MDLs (µg/L)	QLs (µg/L)	
Benzene	71-43-2	500	50	NA	NA	0.12	5.0	
2-Butanone	78-93-3	200,000	20,000	NA	NA	2.0	5.0	
Carbon Tetrachloride	56-23-5	500	50	NA	NA	0.11	5.0	
Chlorobenzene	108-90-7	100,000	10,000	NA	NA	0.23	5.0	
Chloroform	67-66-3	6,000	600	NA	NA	0.30	5.0	
1,2-Dichloroethane	107-06-2	500	50	NA	NA	0.16	5.0	
1,1-Dichloroethene	75-35-4	700	70	NA	NA	0.64	5.0	
Tetrachloroethene	127-18-4	700	70	NA	NA	0.27	5.0	
Trichloroethene	79-01-6	500	50	NA	NA	0.25	5.0	
Vinyl Chloride	75-01-4	200	20	NA	NA	0.78	5.0	

¹ Project action limits are based upon RCRA. This information will be used for disposal. ² The project quantiation limits are based upon one-tenth of the RCRA limits.



³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

QAPP Worksheet #15-9 Reference Limits and Evaluation Table

Matrix: Solid and Liquid Waste Characterization

Analytical Group: TCLP SVOCs **Concentration Level:** Low

				SW-846 8270D				
	G. G. S. S.	Project Action Limit	Project Quantitation Limit	Analyti	cal Method ³	Achievable Laboratory		
Analyte	CAS Number	$(\mu g/L)^1$	Goal (μg/L) ²			Limits		
		(MS / L)	σομί (μg/L)	MDLs	Method QLs	MDLs	QLs	
				(µg/L)	(µg/L)	(µg/L)	(µg/L)	
Cresols ⁴	95-48-7 (2-methylphenol)	200,000	20,000	NA	NA	1.20 (2-)	33.0 (2-)	
Cicsois	106-44-5 (4-methylphenol)	200,000	20,000	IVA	INA	1.10 (4-)	33.0 (4-)	
1,4-Dichlorobenzene	106-46-7	7,500	750	NA	NA	0.63	33.0	
2,4-Dinitrotoluene ⁵	121-14-2	130	13	NA	NA	1.10	33.0	
Hexachlorobenzene ⁵	118-74-1	130	13	NA	NA	0.96	33.0	
Hexachlorobutadiene	87-68-3	500	50	NA	NA	0.70	33.0	
Hexachloroethane	67-72-1	3,000	300	NA	NA	0.73	33.0	
Nitrobenzene	98-95-3	2,000	200	NA	NA	0.90	33.0	
Pentachlorophenol	87-86-5	100,000	10,000	NA	NA	0.72	66.0	
Pyridine	110-86-1	5,000	500	NA	NA	0.86	33.0	
2,4,5-Trichlorophenol	95-95-4	400,000	40,000	NA	NA	0.76	66.0	
2,4,6-Trichlorophenol	88-06-2	2,000	200	NA	NA	0.91	33.0	

¹ Project action limits are based upon RCRA. This information will be used for disposal.



² The project quantiation limits are based upon one-tenth of the RCRA limits.

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

⁴ Total cresols are reported as 2-methylphenol and 4-methylphenol. The sum of these results equals total cresols. The analytical result reported for 4-methylphenol also includes the concentration for the 3-methylphenol isomer; these two isomers cannot be separated. 3-Methylphenol is not reported as a separate compound.

⁵ The project quantitation limit goal is less than the achievable laboratory quantitation limit. The achievable laboratory quantitation limit is low enough to meet the project action limit requirements.

QAPP Worksheet #15-10 **Reference Limits and Evaluation Table**

Matrix: Solid and Liquid Waste Characterization

Analytical Group: TCLP Pesticides

Concentration Level: Low

			Project		SW-846 8081B			
Analyte	CAS Number	Project Action	Quantitation	Analytica	l Method ³	Achievable Laboratory Limits		
Analyte	CAS Number	Limit (µg/L) ¹	Limit Goal (µg/L) ²	MDLs (µg/L)	Method QLs (μg/L)	MDLs (µg/L)	QLs (µg/L)	
Chlordane	57-74-9	30	3	NA	NA	0.47	2.5	
Endrin	72-20-8	20	2	NA	NA	0.011	0.10	
Heptachlor	76-44-8	8	0.8	NA	NA	0.0031	0.05	
Lindane (gamma-BHC)	58-89-9	400	40	NA	NA	0.0063	0.05	
Methoxychlor	72-43-5	10,000	1,000	NA	NA	0.057	0.50	
Toxaphene	8001-35-2	500	50	NA	NA	1.7	5.0	



¹ Project action limits are based upon RCRA. This information will be used for disposal.

² The project quantiation limits are based upon one-tenth of the RCRA limits.

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

QAPP Worksheet #15-11 **Reference Limits and Evaluation Table**

Matrix: Solid and Liquid Waste Characterization

Analytical Group: TCLP Herbicides

Concentration Level: Low

					SW-846	8151A	
Analyte	CAS Number	Project Action Limit	Project Quantitation Limit Goal (μg/L) ²	Analytical 1	Method ³	Achievable Laboratory Limits	
	Number	$(\mu g/L)^1$		MDLs (µg/L)	Method QLs (μg/L)	MDLs (µg/L)	QLs (μg/L)
2,4-D	94-75-7	10,000	1,000	NA	NA	0.037	3.3
2,4,5-TP	93-72-1	1,000	100	NA	NA	0.02	0.33

¹ Project action limits are based upon RCRA. This information will be used for disposal.

² The project quantiation limits are based upon one-tenth of the RCRA limits.

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

QAPP Worksheet #15-12 Reference Limits and Evaluation Table

Matrix: Solid Waste Characterization

Analytical Group: PCBs

Concentration Level: Low to High

					SW-846 8082A		
Analyte	CAS Number	Project Action	Project Quantitation Limit Goal (mg/Kg) ²	An	alytical Method ³	Achievable Laboratory Limits	
	Limit (mg/Kg) ¹ Limit Goal (mg/l		Limit Goai (mg/ K g)	MDLs (mg/Kg)	Method QLs (mg/Kg) ³	MDLs (mg/Kg)	QLs (mg/Kg)
Aroclor 1016	12674-11-2			0.057-0.070	38-47	0.0047	0.033
Aroclor 1221	11104-28-2			0.057-0.070	38-47	0.0028	0.033
Aroclor 1232	11141-16-5			0.057-0.070	38-47	0.0047	0.033
Aroclor 1242	53469-1-9	50	5	0.057-0.070	38-47	0.0045	0.033
Aroclor 1248	12672-29-6			0.057-0.070	38-47	0.0049	0.033
Aroclor 1254	11097-69-1			0.057-0.070	38-47	0.0020	0.033
Aroclor 1260	11096-82-5			0.057-0.070	38-47	0.0062	0.033

¹ Project action limits are based upon RCRA. This information will be used for disposal.

² The project quantiation limits are based upon one-tenth of the RCRA limits.



³ Analytical MDLs and QLs are those documented in validated methods. Per SW-846 Method 8082, the Estimated Quantitation Limit is the MDL times a factor (use 670 for low-concentration soil).

QAPP Worksheet #15-13 Reference Limits and Evaluation Table

Matrix: Liquid Waste Characterization

Analytical Group: PCBs

Concentration Level: Low to High

		Project			SW-846 8082A				
Analyte	CAS Number	Action	Project Quantitation	A	nalytical Method ³	Achievabl	le Laboratory Limits		
Analyte	CAS Number	Limit (mg/L) ¹	Limit Goal (mg/L) ²	MDLs (mg/L)	(mg/L) Method QLs (mg/L)		QLs (mg/L)		
Aroclor 1016	12674-11-2			NA	NA	0.00012	0.001		
Aroclor 1221	11104-28-2			NA	NA	0.00012	0.001		
Aroclor 1232	11141-16-5			NA	NA	0.00019	0.001		
Aroclor 1242	53469-1-9	50	5	NA	NA	0.000095	0.001		
Aroclor 1248	12672-29-6			NA	NA	0.00015	0.001		
Aroclor 1254	11097-69-1			NA	NA	0.000056	0.001		
Aroclor 1260	11096-82-5			NA	NA	0.00016	0.001		



¹ Project action limits are based upon RCRA. This information will be used for disposal.

² The project quantiation limits are based upon one-tenth of the RCRA limits.

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and QLs are not provided in the most recent version of the SW-846 method for the parameters and matrices of interest.

QAPP Worksheet #15-14 **Reference Limits and Evaluation Table**

Matrix: Solid Waste Characterization

Analytical Group: RCRA Characteristics and Pennsylvania Form U Required Parameters

Concentration Level: NA; Low

Analyte	CAS Number	Project Action Limit ¹	Project Action Limit ¹ Project Quantitation		l Method ³	Achievable Laboratory Limits	
Analyte	Analyte CAS Number	Froject Action Limit	Limit Goal ²	MDLs	Method QLs	MDLs	QLs
рН	NA	2-12.5	0.01 pH units	NA	NA	NA	0.1 pH units
Ignitability	10-36-6	Flashpoint <140°F	NA	NA	NA	NA	Report to nearest 1°F
Reactive	57-12-5	100mg/Kg	10mg/Kg	NA	NA	NA	1mg/Kg
Cyanide	37-12-3	100mg/Kg	Tollig/Kg	11/1	1474	IVA	Tilig/Kg
Reactive Sulfide	18496-25-8	500mg/Kg	50mg/Kg	NA	NA	NA	1mg/Kg

¹ Project action limits are based upon RCRA. This information will be used for disposal. ² The project quantitation limits are based upon one-tenth of the project action limit.

³ Analytical MDLs and QLs are those documented in validated methods. NA indicates that the MDLs and method QLs are not provided in the most recent version of the method for the parameters and matrices of interest.

QAPP Worksheet #16 Project Schedule/Timeline Table

		Da	tes		
Activities	Organization	Anticipated Date(s) of Initiation	Anticipated Date of Completion	Deliverable	Deliverable Due Date
Planning and development of data quality objectives	Sevenson	Completed	Completed	Data Quality Objectives	May 2012
Development of the sampling rationale	Sevenson	Completed	Completed	UFP-QAPP	Revision 0: May 2012 Revision 1: July 2012 Revision 2: September 2012
Preparation of the UFP-QAPP	Sevenson	Completed	Completed	UFP-QAPP	Revision 0: May 2012 Revision 1: July 2012 Revision 2: September 2012
Collection of soil samples and submission for analysis – waste characterization, offsite backfill	Sevenson	Summer 2012	Winter 2012/2013	Sample collected per UFP-QAPP	NA
Collection of water samples and submission for analysis – waste characterization	Sevenson	Summer 2012	Winter 2012/2013	Samples collected per UFP-QAPP	NA
Laboratory data analyses review and verification of data	Sevenson	Autumn 2012	Spring 2013	Quality Control Summary Report	Within 45 days after receipt of the last laboratory data report

Note: The project schedule is continually being updated and submitted to the USACE; please refer to the individual submittals of the project schedule for the up-to-date timetable.



QAPP Worksheet #17-1 Sampling Design and Rationale – Offsite Backfill Sampling

As necessary over the duration of the project, backfill material consisting of common fill and standard topsoil will be obtained from offsite sources. Samples of backfill materials will be analyzed to confirm that they are free from chemical contamination as defined in N.J.A.C. 7:26D and NORM as defined in N.J.A.C 7:28-12.

Offsite backfill materials will be acquired from local, USACE-approved, borrow sources. The backfill material will meet the requirements described in Section 02320 of the project specification and the requirements defined in the NJDEP Soil Cleanup Criteria. The fill material will be sampled and analyzed to verify that the soil is clean for the intended use. Documentation certifying that all criteria have been met for offsite backfill will be forwarded to the USACE prior to bringing any material to the site.

A minimum of one sample per every 5,000yd³ of backfill material, and no less than one sample per borrow area will be collected. Additional samples may be collected and analyzed as requested by the USACE. The sample location is determined when the facility point of contact identifies which pile of backfill material will be used for the site.

Backfill material samples will be analyzed for VOCs, SVOCs, pesticides, PCBs, metals, cyanide, and radiological parameters. The results of these analyses will be compared to the NJDEP RDCSRS and N.J.A.C. 7:28-12, Table 1A (see Worksheets #15-1 through #15-6). Sample results exceeding criteria will be considered unacceptable as topsoil or backfill.

Backfill samples will be analyzed on a five day turn around time; validated data will be received on a 30 calendar day turn around time. Field QC sample collection is summarized in Worksheet #20, and each field QC sample type is defined in Worksheet #28 of this UFP-QAPP. Field duplicates will not be collected. Disposable equipment will be used when possible to avoid the need for equipment blanks.

Samples will be collected according to the following procedures:

VOC samples will be collected using five-gram En-CoreTM samplers and the spade and trowel method will be used for all other parameters. With the spade and trowel method, the top layer of soil to desired sample depth is removed with a dedicated, pre-cleaned spade. A dedicated, pre-cleaned trowel is then used to collect samples from the desired depth (i.e., at a minimum from the top six inches of soil). VOC samples will be collected as grab samples and samples for all other parameters will be collected as five-point composites. Soil samples for laboratory analysis will be collected in the appropriate containers identified in Worksheet #19. The order of collection for analytical parameters will be organics and then metals. To maintain integrity of the collected samples, preservation techniques should include refrigeration and protection from light, and the sample jars should be closed immediately after filling and placed on ice.

Samples for VOC analysis will be collected as follows:

- Gloves will be donned immediately prior to sampling and a pair of new gloves will be worn each time a different location is sampled.
- The sample collection process should be completed in a minimal amount of time with the least amount of disruption as possible. Rough trimming of the sampling location surface layer should be considered if the material may have already lost VOCs (e.g., been exposed for more than a few minutes) or if other waste, different soil strata, or vegetation may have contaminated it. Surface layers can be removed by scraping the surface using a clean spade.
- Insert the clean coring tool into a fresh surface for sample collection. Take care not to trap air behind the sample. An undisturbed sample is collected by pushing the barrel of the coring tool into a freshly exposed surface and removing the corer once it is filled.
- The exterior of the barrel should be quickly wiped with a clean disposable towel to ensure a tight seal and the cap snapped on the open end.



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Samples for all other analyses will be collected as follows:

- Gloves will be donned immediately prior to sampling and a pair of new gloves will be worn each time a different location is sampled.
- Using a disposable sample trowel, collect sufficient sample into a dedicated, disposable aluminum container from each of the five predetermined sample locations. The container must be large enough to hold more than the required volume and to allow proper mixing without spillage.
- Homogenization will be conducted using a decontaminated stainless steel spoon or spatula. The soil should be scraped from the sides, corners, and bottom, rolled into the middle of the bowl, and mixed. The soil should then be quartered (i.e., divided into four sections) and moved to the sides of the bowl. Each quarter should then be mixed individually, and then rolled to the center of the bowl and mixed with the entire sample again. These steps of quartering the sample, mixing individually, and then mixing the entire sample again should be repeated at least twice. The goal of the homogenization is to achieve a consistent physical appearance over the entire soil sample.
- Transfer the sample into laboratory cleaned sample jars using a clean decontaminated stainless steel spoon or spatula.
- Any leftover sample material will be placed back into the borrow area.



QAPP Worksheet #17-2 Sampling Design and Rationale – Solid Waste Characterization Sampling

As part of the site remediation, soils removed during remediation activities will be disposed of at an offsite disposal facility. Samples will be collected in-situ, prior to excavation activities, for waste characterization and disposal facility approval. The waste characterization samples will be analyzed by the subcontracted laboratory and the results will be sent to the offsite disposal facility for waste shipment approval. Waste characterization sample results will be compared against the disposal facility requirements.

Solid waste characterization samples will be analyzed for TCLP parameters (VOCs, SVOCs, pesticides, herbicides, and metals), total PCBs, and RCRA characteristics (corrosivity, ignitability, reactive cyanide, and reactive sulfide). The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the analytical requirements. In addition to the full characterization samples, if deemed necessary by the Waste Disposal Coordinator or if required by the offsite disposal facility, additional samples may be collected and analyzed for only PCBs. All solid waste characterization samples will be shipped to the laboratory for analysis on a 5 day turn around time; validated data will be received on a 30 calendar day turn around time. Field QC sample collection is summarized in Worksheet #20, and each field QC sample type is defined in Worksheet #28 of this QAPP. Disposable equipment will be used when possible to avoid the need for equipment blanks.

Samples will be collected according to the following procedures:

Solid waste characterization samples will be collected in-situ prior to the initiation of excavation activities. Maps of the excavation areas and predetermined depths of excavation for the three remediation areas are included in Appendix 1. Large plots of the figures included in Appendix 1 are available onsite and should be referenced for all field activities. One full waste characterization sample will be collected from each proposed excavation area, with one sample collected for every 500yd³ of excavated material in the larger property groupings. With the exception of TCLP VOC samples, the samples will be collected as five-point composites. The compositing procedure is designed to provide a representative sample of the waste material by combining materials collected from five discrete locations in the subsection of the excavation area. In order to prevent excess volatilization, TCLP VOC samples will be collected as a grab sample from one of the sample locations. Samples will be collected from the midpoint depth of the predetermined vertical limit of excavation (see Figures 1A, 2A, and 3A included in Appendix 1). It is anticipated that soil samples will be collected from each location using an auger or other soil coring device following the procedures included in the NJDEP Field Sampling Procedures Manual (NJDEP, 2005). The samples will be collected as follows:

- Gloves will be donned immediately prior to sampling and a clean pair of new disposable gloves will be worn each time a different location is sampled.
- Remove unnecessary twigs, rocks, and other non-soil materials from selected sampling point.
- Begin turning the auger with a clockwise motion and continue until the desired sampling depth is obtained.
- Use a second auger to collect the sample. Discard one-half inch of material in the top portion of the auger due to cave-in.
- Place the sample for VOC analysis directly into the required container, taking care to fill the container completely to limit headspace.
- Place the sample into a clean decontaminated stainless steel bowl to be homogenized. The bowl must be large enough to hold more that the required sample volume and to allow proper mixing without spillage.
- Collect the samples from the other four location using the auger as described above, placing each aliquot in the same stainless steel bowl.
- Homogenization will be conducted using a decontaminated stainless steel spoon or spatula. The soil should be scraped from the sides, corners, and bottom, rolled into the middle of the bowl, and mixed. The soil should then be quartered (i.e., divided into four sections) and moved to the sides of the bowl. Each quarter should then be mixed individually, and then rolled to the center of the



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bowl and mixed with the entire sample again. These steps of quartering the sample, mixing individually, and then mixing the entire sample again should be repeated at least twice. The goal of the homogenization is to achieve a consistent physical appearance over the entire soil sample.

- Transfer the sample into laboratory cleaned sample jars using a clean decontaminated stainless steel spoon or spatula.
- Any leftover sample material will be placed back into the excavation area.



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QAPP Worksheet #17-3 Sampling Design and Rationale – Liquid Waste Characterization Sampling

Liquid wastes generated during site activities, if any, will be containerized in an aboveground storage tank. At a minimum, one sample will be collected from each storage tank to determine the waste management approach. The sample results and the completed waste profile will be sent to the offsite disposal facility for waste shipment approval.

Liquid waste characterization samples will be analyzed for TCLP parameters (VOCs, SVOCs, pesticides, herbicides, and metals), total PCBs, and RCRA characteristics (corrosivity, ignitability, reactive cyanide, and reactive sulfide). Additional analytes may be required by the offsite disposal facility; the Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the analytical requirements. The samples will be shipped to the laboratory for analysis on a 5 day turn around time; validated data will be received on a 30 calendar day turn around time. Field QC sample collection is summarized in Worksheet #20, and each field QC sample type is defined in Worksheet #28 of this QAPP. Disposable equipment will be used when possible to avoid the need for equipment blanks.

Samples will be collected according to the following procedures:

Samples will be collected using dedicated, disposal polyvinyl chloride or Teflon bailers. The following sample procedure is consistent with NJDEP sampling instructions (NJDEP, 2005):

- Prepare the work area by placing plastic sheeting on the ground to avoid cross-contamination.
- Attach the bailer to cable or line for lowering. Polyethylene or nylon rope is recommended.
- Lower the bailer slowly until it contacts the water surface.
- Allow the bailer to sink and fill.
- Slowly raise the bailer to the surface. Do not allow the bailer line or bailer to contact the ground surface.
- Fill sample bottles by tipping bailer to allow slow discharge from the top to flow gently down the side of the sample bottle with minimal turbulence. If a bottom drain is present on the bailer, achieve a slow steady flow.
- Repeat as necessary to acquire sufficient volume to fill all sample containers.



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QAPP Worksheet #18 Sampling Locations and Methods/SOP Requirements Table

Sampling Location/AOC	Matrix	Depth	Analytical Group	Concentration Level	Number of Samples (identify field duplicates)	Sampling SOP Reference	Rationale for Sampling Location
Offsite backfill and topsoil	Soil	At least 6 inches below surface	VOCs SVOCs Pesticides PCBs Metals Cyanide Radiological Parameters	Trace to Low	Approximately 2 samples (i.e., 1 backfill sample and 1 topsoil sample) No field duplicate samples required	Worksheet #17-1	Verify topsoil and backfill from offsite sources do not contain contaminant levels that are hazardous to human health or the environment
Waste characterization ¹	Soil	Midpoint ²	TCLP VOCs TCLP SVOCs TCLP Pesticides TCLP Herbicides PCBs TCLP Metals Cyanide Reactivity Sulfide Reactivity pH Ignitability	Low to High	Approximately 7 samples (i.e., 2 samples from Property 108/129/301/303; 1 sample from Property 116/302; 4 samples from Property 128/304/305) No field duplicate samples required	Worksheet #17-2	Characterize waste for proper disposal
Waste characterization	Soil	Midpoint ²	PCBs	Low to High	Determined in the field and/or as requested by the offsite disposal facility No field duplicate samples required	Worksheet #17-2	Characterize waste for proper disposal
Waste characterization ¹	Aqueous	NA	TCLP VOCs TCLP SVOCs TCLP Pesticides TCLP Herbicides PCBs TCLP Metals Cyanide Reactivity Sulfide Reactivity pH Ignitability	Low to High	Determined in the field based on the amount of wastewater generated No field duplicate samples required	Worksheet #17-3	Characterize waste for proper disposal



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Additional analytes may be required by the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the analytical requirements.

Samples will be collected at the midpoint between the ground surface and the limit of excavation. Refer to the excavation plan drawings for each property group included in the Appendix 1.

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QAPP Worksheet #19 Analytical SOP Requirements Table

Matrix	Analytical Group	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type) ¹	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation/analysis)
Offsite backfill	VOCs SVOCs Pesticide PCBs Metals Cyanide Radiological Parameters	Trace to Low	90.0012 70.0011 60.0006 60.0003 100.0012, 100.0111 100.0004 PGH-R-023-5	200 grams for extractable organics and metals; 2 different 5 gram aliquots for VOCs Gamma spectroscopy: fill Marinelli container (sample weight will vary based on density of material)	32oz. glass container for extractable organics and metals; 5 gram EnCore™ samplers and 4oz. glass container for VOCs; 32oz. glass containers for gamma spectroscopy	4°C±2°C; minimize headspace; none required for gamma spectroscopy	VOCs: Analyze within 14 days from date of collection SVOCs, Pesticides, PCBs: 14 days from date of collection to extraction and 40 days from extraction to analysis Metals: 180 days from date of collection to analysis; 28 days from date of collection to analysis for mercury Cyanide: 14 days from date of collection to analysis Gamma Spectroscopy: 180 days from date of collection to analysis

Matrix	Analytical Group	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type) ¹	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation/analysis)
Solid Waste Characterization ²	TCLP VOCs TCLP SVOCs TCLP Pesticides TCLP Herbicides TCLP Metals PCBs pH Ignitability Reactive Cyanide Reactive Sulfide	Low to High	90.0012 70.0011 60.0006 60.0034 100.0012, 100.0111 60.0003 100.0112 100.0024 100.0015 100.0015	200 grams for extractable organics and metals; 25 grams for VOCs; 100 grams for RCRA characteristics	32 oz. glass container for extractable organics and metals; 4oz. glass container for VOCs; 32oz. glass container for RCRA characteristics	4°C±2°C; VOCs: zero headspace	for organics and within 14 days for organics and within 180 days for metals (except mercury within 28 days); Analysis of TCLP extracts: VOCs: analysis within 14 days; Extractable Organics (SVOCs, pesticides, herbicides): extraction of leachate within 7 days and analysis within 40 days of extraction; Metals: analysis within 180 days (except mercury within 28 days); Oil & Grease, Ammonia, Chemical Oxygen Demand: analysis within 28 days PCBs: 14 days from date of collection to extraction and 40 days from extraction to analysis pH, Ignitability, Reactive Sulfide: 7 days from date of collection to analysis Reactive Cyanide: 14 days from date of collection to analysis
Solid Waste Characterization	PCBs	Low to High	60.0003	200 grams for extractable organics and	4oz. glass container	4°C±2°C	14 days from date of collection to extraction and 40 days from extraction to analysis

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CLP VOCs Characterization Matrix	Analytical Group	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type) ¹	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation/analysis)	
		TCLP SVOCs TCLP Pesticides TCLP Herbicides TCLP Metals PCBs pH Ignitability Reactive Cyanide	Low to High	70.0011 60.0006 60.0034 100.0012, 100.0111 60.0003 100.0112 100.0024 100.0015	each for TCLP SVOCs, TCLP pesticides, TCLP herbicides, and PCBs; 500mL for TCLP metals; 100mL for pH; 250mL for ignitability; 1L for reactive cyanide; 500mL for	with Septa lined cap; 1L amber glass bottle each for TCLP SVOCs, TCLP pesticides, TCLP herbicides, and PCBs; 500mL plastic bottle for TCLP metals; 100mL plastic bottle for pH; 250mL glass bottle with Septa lined cap for ignitability; 1L plastic bottle for reactive cyanide; 500mL plastic bottle for reactive cyanide; 500mL plastic bottle for reactive	zero headspace/HCl to pH<2; TCLP metals: HNO ₃ to pH<2; reactive cyanide: ascorbic NaOH to pH>12; reactive sulfide:	for organics and within 180 days for metals (except mercury within 28 days); Analysis of TCLP extracts: VOCs: analysis within 14 days; Extractable Organics (SVOCs, pesticides, herbicides): extraction of leachate within 7 days and analysis within 40 days of extraction; Metals: analysis within 180 days (except mercury within 28 days) PCBs: 7 days from date of collection to extraction and 40 days from extraction to analysis pH: Immediately Ignitability, Reactive Sulfide: 7 days from date of collection to analysis

¹ In some cases, multiple analyses can be taken from the same jar. Consult the laboratory for further instructions.

² Additional analytes may be required by the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the analytical requirements.

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QAPP Worksheet #20 Field Quality Control Sample Summary Table

Matrix	Analytical Group	Conc. Level	Analytical and Preparation SOP Reference	No. of Sampling Locations	No. of Field Duplicate Pairs	No. of MS/MSD	No. of Field Blanks	No. of Equip. Blanks	No. of Trip Blank Samples	Total No. of Samples to Lab
Offsite backfill	VOCs SVOCs	Trace	90.0012	One sample per 5,000yd ³ of backfill material and	0	0	0	0	0	2
and topsoil	Pesticides PCBs Metals Cyanide Radiological Parameters	to Low	70.0011 60.0006 60.0003 100.0012, 100.0111 100.0004 PGH-R-023-5	not less than one sample per borrow area for a total of approximately 2 samples.						
Solid waste characterization ¹	TCLP VOCs TCLP SVOCs TCLP Pesticides TCLP Herbicides TCLP Metals PCBs pH Ignitability Reactive Cyanide Reactive Sulfide	Low to High	90.0012 70.0011 60.0006 60.0034 100.0012, 100.0111 60.0003 100.0112 100.0024 100.0015 100.0015	Approximately 7 samples (i.e., 2 samples from Property 108/129/301/303; 1 sample from Property 116/302; 4 samples from Property 128/304/305)	0	0	0	0	0	7
Solid waste characterization	PCBs	Low to High	60.0003	Determined in the field and/or as requested by the offsite disposal facility	0	0	0	0	0	TBD
Liquid waste characterization ¹	TCLP VOCs TCLP SVOCs TCLP Pesticides TCLP Herbicides TCLP Metals PCBs	Low to High	90.0012 70.0011 60.0006 60.0034 100.0012, 100.0111 60.0003	Determined in the field based on the amount of wastewater generated	0	0	0	0	0	TBD
	Ignitability Reactive Cyanide Reactive Sulfide		100.0024 100.0015 100.0015							

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Additional analytes may be required by the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the analytical requirements.

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QAPP Worksheet #21 Project Sampling SOP References Table

Reference Number	Title, Revision Date, and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
NA	NJDEP Field	NJDEP	Sample	No	To be used by the field team as a guide to collecting samples.
	Sampling		collection and		Sampling methodology included in Worksheet #17 is based on the
	Procedures		processing		procedures included in this manual. Specific sections to reference
	Manual, August		equipment		include 5.2.1.1 (liquid waste characterization), 6.2.7 (VOCs in soil),
	2005				6.2.8 (soil homogenization), and 6.6 (waste piles).

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QAPP Worksheet #22 Field Equipment Calibration, Maintenance, Testing, and Inspection Table

Field Equipment	Calibration Activity	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
		No field sample	ing equipmen	t is expected to	be used during	remediation activ	vities.		

QAPP Worksheet #23 Analytical SOP References Table¹

Reference Number	Title, Revision Date, and/or Number ²	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work?
60.0003	Determination of Polychlorinated Biphenyls by Gas Chromatography/Electron Capture Detector Analysis Using SW846 Method 8082A, Revision 10, April 11, 2011	Definitive	PCBs	Gas Chromatography with Electron Capture Detector (GC-ECD)	Spectrum	No
60.0006	Determination of Pesticides by Gas Chromatography/Electron Capture Detector Analysis by SW846 Method 8081A, Revision 10, April 8, 2011	Definitive	Pesticides	GC-ECD	Spectrum	No
60.0034	Determination of Chlorinated Herbicides by Gas Chromatography/Electron Capture Detector Analysis by SW846 Method 8151A, Revision 8, April 8, 2011	Definitive	Herbicides	GC-ECD	Spectrum	No
70.0011	Determination of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry Analysis by SW846 Method 8270D, Revision 11, July 18, 2011	Definitive	SVOCs	GC/MS	Spectrum	No
90.0012	Determination of Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry Analysis by SW846 Method 8260C, Revision 12, September 9, 2011	Definitive	VOCs	Gas Chromatography/Mass Spectroscopy (GC/MS)	Spectrum	No
100.0004	Total Cyanide by Automated Colorimetric with Midi-Distillation SW846 9012B, Revision 8, March 12, 2012	Definitive	Cyanide	Distillation, Colorimetric	Spectrum	No
100.0111	Determination of Metals in Water and Soil by Inductively Coupled Argon Plasma Atomic Emission Spectrometry using Method Sw846 6010C, Revision 13, December 22, 2010	Definitive	Metals	Inductively Coupled Plasma (ICP)-Atomic Emission Spectrometry (AES)	Spectrum	No
100.0012	Mercury Analysis in Aqueous and Soil Samples by Flow Injection Mercury Systems (FIMS) for Cold Vapor Atomic Analysis by SW846 Method 7470A/7471B, Revision 10, June 15, 2010	Definitive	Mercury	Cold Vapor Atomic Absorption (CVAA)	Spectrum	No

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Reference Number	Title, Revision Date, and/or Number ²	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work?
100.0015	The Preparation of Waste Samples fro Reactive Cyanide and Sulfide; Determination of Reactive Cyanide by Automated Colorimetric Method and Reactive Sulfide by Spectrophotometric Method SW846 Methods 7.3.3.2 and 7.3.4.2, Revision 6, November 9, 2011	Definitive	Reactive Cyanide and Sulfide	Cyanide: Colorimetric Sulfide: Spectrophotometric	Spectrum	No
100.0024	Flashpoint Analysis, Revision 9, August 7, 2012	Definitive	Ignitability	Pensky-Martens	Spectrum	No
100.0112	pH in Soil Samples by SW846 9045C and USEPA SOM01.2, Revision 8, July 28, 2011	Definitive	pН	pH Meter	Spectrum	No
PGH-R-023-5	Gamma Spectroscopy Instrument Operations, May 18, 2012	Definitive	Radiological Parameters	Gamma Spectrometer	Spectrum	No

¹ Copies of the laboratory SOPs are included in Appendix 6.
² The SOPs included in this Worksheet are current as of the writing of this document. The laboratory will use the most current version of their SOP for all analyses.

QAPP Worksheet #24 Analytical Instrument Calibration Table

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
GC/MS (VOC)	Bromofluorobenzene (BFB) tuning	Prior to initial calibration and calibration verification	Refer to criteria listed in the SOP	Retune instrument and verify	Laboratory analyst	90.0012
	Initial calibration (minimum five points)	Prior to sample analysis or when calibration verification fails	% relative standard deviation (RSD) must be ≤15% for each compound. If %RSD>15%, determine best-fit curve: Linear regression correlation coefficient ≥0.995 or quadratic regression coefficient of determination ≥0.99	Correct the problem and repeat the initial calibration.	Laboratory analyst	
	System performance check	Once after each initial calibration and calibration verification	Response factor ≥0.10 for chloromethane, 1,1-dichloroethane, and bromoform; ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane	Correct the problem and repeat initial calibration.	Laboratory analyst	
	Continuing Calibration Verification (CCV)	At the start of each analytical sequence and every 12 hours thereafter	Response factor ≥0.10 for chloromethane, 1,1-dichloroethane, and bromoform; ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane. All other analytes within ±20% of expected value.	Correct the problem, then recalibrate and reanalyze all samples since the last acceptable continuing calibration verification	Laboratory analyst	



Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
GC/MS (SVOC)	Decafluorotriphenylphosphine (DFTPP) tuning	Prior to initial calibration and calibration verification (every 12 hours)	Refer to criteria listed in the SOP	Retune instrument and verify	Laboratory analyst	70.0011
	Initial calibration (minimum five points)	Prior to sample analysis or when calibration verification fails	%RSD must be ≤15% for each compound. If %RSD >15%, determine best-fit curve: Linear regression correlation coefficient ≥0.995 or quadratic regression coefficient of determination ≥0.99	Correct the problem and repeat the initial calibration.	Laboratory analyst	
	System performance check	Once after each initial calibration and calibration verification	Response factor ≥0.05 for N-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol, and 4-nitrophenol	Correct the problem and repeat initial calibration.	Laboratory analyst	
	CCV	At the start of each analytical sequence and every 12 hours thereafter	Response factor ≥0.05 for N-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol, and 4-nitrophenol. All other analytes within ±20% of expected value.	Correct the problem, then recalibrate and reanalyze all samples since the last acceptable continuing calibration verification	Laboratory analyst	

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
GC/ECD (pesticides, PCBs, herbicides)	Multipoint initial calibration for single response pesticides; multipoint calibration for multipeak pesticides; multipoint calibration for aroclors 1016 and 1260 only	Whenever major instrument maintenance or modification is performed, or when calibration verification fails	To use average relative response factor (RRF) for quantitation of any analyte, %RSD must be ≤15%; otherwise use first order linear regression curve with correlation coefficient ≥0.995 or quadratic regression with coefficient of determination ≥0.99	Correct the problem and repeat the initial calibration.	Laboratory analyst	60.0003 60.0006 60.0034
	Initial calibration verification (ICV)	Once for each multipoint initial calibration	All analytes within ±20% of expected value	Correct the problem, then repeat the initial calibration and reanalyze all samples	Laboratory analyst	
	CCV	At the start of each analytical sequence, after 12 hours or 10 samples whichever is more frequent, and at the end of the sequence	All analytes within ±20% of expected value; either column may be used to meet the calibration criteria, however, the analytes must be quantified from then column that met the criteria	Correct the problem, then repeat initial calibration and reanalyze all samples.	Laboratory analyst	
ICP-AES (metals)	Initial calibration	Before sample analysis, every 24 hours, whenever modifications are made to the system, or when continuing calibration verification fails	Correlation coefficient must be ≥0.997	Correct problem and repeat initial calibration.	Laboratory analyst	100.0111



Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
	ICV	Once after each initial calibration, prior to sample analysis	Recovery must be 95-105%	Reanalyze, if problem persists, terminate analysis, correct problem, recalibrate, and re-verify the calibration	Laboratory analyst	
	QC check standard	Once after each initial calibration, prior to sample analysis	Recovery must be 90-110%	Terminate analysis, correct problem, recalibrate, and re-verify the calibration	Laboratory analyst	
	Initial calibration blank (ICB)	Immediately after analysis of ICV	Absolute value of blank result <3-sigma the mean calibration blank.	Terminate analysis, correct the problem, recalibrate, and re-verify the calibration	Laboratory analyst	

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
	CCV	After every 10 samples and at the end of the analysis sequence	Recovery must be 90-110%	Terminate analysis, correct the problem, recalibrate and re-verify the calibration; reanalyze all samples and QC checks run since last acceptable CCV	Laboratory analyst	
	Continuing calibration blank (CCB)	Immediately after analysis of the CCV	Absolute value of blank must be <rl< td=""><td>Terminate analysis, correct problem, recalibrate and re-verify the calibration; reanalyze all samples and QC checks run since the last acceptable CCB</td><td>Laboratory analyst</td><td></td></rl<>	Terminate analysis, correct problem, recalibrate and re-verify the calibration; reanalyze all samples and QC checks run since the last acceptable CCB	Laboratory analyst	

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
CVAA (mercury)	Initial calibration	Before sample analysis, every 24 hours, whenever modifications are made to the system, or when continuing calibration verification fails	Correlation coefficient must be ≥0.995	Correct problem and repeat initial calibration	Laboratory analyst	100.0012
	QC check standard	Immediately following each initial calibration	All analytes within ±10% of expected value	Check QC solution; recalibrate and reanalyze; if results are still not acceptable, re-digest and reanalyze samples	Laboratory analyst	
	CCV	After every 10 samples and at the end of the analysis sequence	All analytes within ±20% of expected value	Recalibrate and reanalyze all samples since the last acceptable continuing calibration verification	Laboratory analyst	
Cyanide	Initial multipoint calibration (minimum eight standards and a calibration blank)	Annually or if analysis of continuing calibration or QC check standards do not meet criteria	Correlation coefficient ≥0.995 for linear regression	Correct problem then repeat initial calibration.	Laboratory analyst	100.0004 100.0015



Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
	Distilled standards (one high and one low)	Once per initial calibration	Value within ±10% of true value	Correct problem then repeat distilled standard	Laboratory analyst	
	CCV	Daily prior to sample analysis	Value within ±15% of true value	Prepare new calibration verification standard; recalibrate if problem cannot be located	Laboratory analyst	
Gamma Spectroscopy	Energy and efficiency calibration	After initial installation, annually, and following system maintenance that could affect the calibration	Energy calibration: full width at half maximum (FWHM) ±5% Efficiency calibration: (1) If within 2 sigma of historic mean, no action necessary (2) If between 2 and 3 sigma of mean, no action necessary but record and observe (3) If greater than 3 sigma of historic mean, repeat; if successful instrument is usable; if unsuccessful tag instrument out of service	Repeat calibration	Laboratory analyst	PGH-R-023-5

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
	Energy and efficiency check	Daily	Energy check: FWHM ±5% Efficiency check: (1) If within 2 sigma of historic mean, no action necessary (2) If between 2 and 3 sigma of mean, no action necessary but record and observe (3) If greater than 3 sigma of historic mean, repeat; if successful instrument is usable; if unsuccessful tag instrument out of service	Repeat calibration	Laboratory analyst	
	Background check	Daily	(1) If within 2 sigma of historic mean, no action necessary (2) If between 2 and 3 sigma of mean, no action necessary but record and observe (3) If greater than 3 sigma of historic mean, repeat; if successful instrument is usable; if unsuccessful tag instrument out of service	Repeat background check	Laboratory analyst	
Pensky-Martens	Determine flashpoint of xylenes	Once per 10 samples analyzed	Value of 81°F (±2°F)	Check apparatus for proper operation before analyzing samples	Laboratory analyst	100.0024
pH Meter	Initial calibration (minimum 2 points)	Daily	Slope of curve must be 100±5%	Correct problem and repeat calibration	Laboratory analyst	100.0112



Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
	Calibration verification	After initial calibration, after every 10 samples analyzed, and at the end of sample measurement	pH 7 buffer solution must exhibit pH of 7.00±0.05	Repeat initial calibration and reanalyze all associated samples	Laboratory analyst	

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QAPP Worksheet #25 Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

All laboratory analytical equipment will undergo maintenance and testing procedures in accordance with the laboratory SOPs. Laboratory SOPs must be compliant with minimum method requirements. Some typical maintenance and testing activities are included in the following table.

Instrument/Equipment	Frequency	Maintenance, Testing, or Inspection Activity	Responsible Person	SOP Reference
	Daily	Purge traps are baked out; changes of the traps are logged. Columns are baked out.		
		Volume of gas cylinders is checked.		
		Teflon ferrules are replaced.		
		Injection port liners are cleaned or replaced.		60.0003
	As Required	GC septa are changed after 50 injections.	Laboratory analyst	60.0006
GC/MS; GC-ECD		Detectors are baked out.		60.0034
	Occateda	Instrument electronics are visually inspected and cleaned.		70.0011 90.0012
	Quarterly	Detectors are cleaned as recommended by the manufacturer or more frequently as needed.		
		Electron capture detectors are wipe tested.		
	Annually	Preventative maintenance performed by	Manufacturer representative	
		manufacturer as per service contract terms.	Wandacturer representative	
		Verify room temperature and humidity maintained		
		to manufacturer's specifications.		
		Check argon tank pressure and verify that spare tank is available.		
	Delle	Inspect pump tubing before operation and every few hours.		
ICP-AES	Daily	Check that nebulizer is not clogged and that	Laboratory analyst	100.0111
		capillary tubing is clean and in good condition.		
		Inspect torch glassware and aerosol injector tube.		
		Be sure drain tube is firmly attached to spray		
		chamber and drain bottle. Verify that drain bottle is		
	A D : 1	not full and that there is liquid in the loop.		
	As Required	Check tension on peristaltic pump tubing.		



Instrument/Equipment	Frequency	Maintenance, Testing, or Inspection Activity	Responsible Person	SOP Reference	
		Check nebulizer spray pattern with deionized water			
		and clean spray tips if necessary.			
		Clean torch components with water or solvents.			
		Replace cracked or work o-rings.			
		Inspect air filter and clean with soap and water if			
		necessary.			
		Check performance by running Manganese			
		Background Equivalent Concentration or			
		Coefficient of Variation tests.			
		Clean and rinse all glassware with 20% nitric acid			
	Daily	and 10% hydrochloric acid.			
	Daily	Check tubing for contamination and wear.			
CVAA		Regenerate drying tube.	Laboratory analyst	100.0012	
CVAA	As Required	Rinse stannous chloride and pump tubing with 10%	Laboratory allaryst	100.0012	
		10N sodium hydroxide and deionized water.			
		Wipe pump rollers with isopropyl alcohol.			
		Replace lamp and clean optical cell.			
		Clean glassware prior to reuse			
	Daily	Rinse tubing connecting distillation heads and			
		dispersion tube assemblies with reagent water	Laboratory analyst	100,0004	
Cyanide Analysis Distillation System	As Required	Replace tubing when it appears soiled		100.0004	
	C	Replace tubing		100.0015	
	Semi-Annually	Inspect spectrophotometer	Man Carl man man and di		
	As Required	Change internal filling solution	Manufacturer representative		
	Daily	Background, calibration, and LCS checks			
	Monthly	System background check	I aboutom: Cumomican		
	Annually	Efficiency and energy calibrations	Laboratory Supervisor		
Gamma Spectroscopy System		Physical inspection		PGH-R-023-5	
1 10 0	G . A 11	Test point voltage check			
	Semi-Annually	Certified weight set response check	Manufacturer representative		
		Re-generate column efficiency	•		
		Verify room temperature and humidity maintained			
David - Martin	D. T.	to manufacturer's specifications.	Laboratory	100.0024	
Pensky-Martens	Daily	Wash flash cup with soap and water after each	Laboratory analyst	100.0024	
ı		analysis.			



Instrument/Equipment	Frequency	Maintenance, Testing, or Inspection Activity	Responsible Person	SOP Reference	
		Clean glassware prior to reuse			
	Daily	Store electrode in pH 7 buffer solution or storage		100.0112	
pH Meter		solution	Laboratory analyst		
	As Required	Change internal filling solution			
		Re-generate column efficiency			

QAPP Worksheet #26 Sample Handling System

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT

Sample Collection (Personnel/Organization): Sevenson field team

Sample Packaging (Personnel/Organization): Sevenson field team

Coordination of Shipment (Personnel/Organization): Sevenson field team

Type of Shipment/Carrier: Federal Express or United Parcel Service (UPS) for Overnight Delivery or courier to the laboratory

SAMPLE RECEIPT AND ANALYSIS

Sample Receipt (Personnel/Organization): Subcontract laboratory personnel

Sample Custody and Storage (Personnel/Organization): Subcontract laboratory personnel

Sample Preparation (Personnel/Organization): Subcontract laboratory personnel

Sample Determinative Analysis (Personnel/Organization): Subcontract laboratory personnel

SAMPLE ARCHIVING

Field Sample Storage (No. of days from sample collection): Samples will not be stored in the field, but will be shipped within 24 hours of collection. If in an emergency they are stored in the field, they will be kept in a cooler or transferred to a refrigerator kept at 4°C. Laboratory sample custodian will store samples at the laboratory for 30 days after the final report has been submitted to Sevenson.

Sample Extract/Digestate Storage (No. of days from extraction/digestion): Sample extraction and digestion must be conducted according to the requirements given in Worksheet #19. Laboratory analytical technicians will store all extracts/digestates for 30 days after the final report has been submitted to Sevenson.

Biological Sample Storage (No. of days from sample collection): Not applicable

SAMPLE DISPOSAL

Personnel/Organization: Subcontract laboratory personnel

Number of Days from Analysis: Samples may not be disposed of prior to 30 days after final report has been submitted to Sevenson.



QAPP Worksheet #27 Sample Custody Requirements

Proper sample handling, shipment, and maintenance of a chain of custody (COC) are key components of building the documentation and support for data that can be used to make project decisions. It is important that sample handling and sample COC requirements are performed completely, accurately, and consistently. A COC record establishes the documentation necessary to trace sample possession from time of collection through sample analysis and disposition.

A sample is considered to be in someone's custody if it:

- Is in his/her possession.
- Is in his/her view, after being in his/her possession.
- Is in his/her possession and has been placed in a secure area.
- Is in a designated secure area.

Field Logbooks/Documentation

The sequentially numbered field logbook (i.e., OU1 Soil Remediation #1, -#2, etc.) will provide the means of recording data collection activities performed. As such, logbook entries will be described in as much detail as possible so that particular site activities could be reconstructed without reliance on memory.

Field logbooks will be bound logbooks, field survey books, or notebooks. Logbooks will be assigned to field personnel, but will be stored in the document control center when not in use.

A project-specific document number will be used to identify each logbook. The title page of each logbook will contain the following information:

- Person to whom the logbook is assigned.
- Logbook number.
- Project name.
- Project start date.
- Project end date.

Entries into the logbook will contain a variety of information. The beginning of each entry will include: the date, start time, weather conditions, names of all sampling team members present, level of personal protection being used, and the signature of the person making the entry. The names of visitors to the site (including additional field sampling or investigative team personnel), and the purpose of their visit will also be recorded in the field logbook.

Measurements made and samples collected will be recorded in the field logbook. All entries will be made in ink and no erasures will be made. If an incorrect entry is made, the incorrect information will be crossed out with a single strike mark and initialed. Whenever a sample is collected or a measurement is made, a detailed description of the location of the station will be recorded in the logbook. The number of photographs taken at the station, if any, will also be noted. The logbook will identify all equipment used to make measurements.

Samples will be collected in accordance with the sampling procedures documented in Worksheet #17. The equipment used to collect samples will be noted, along with the time of sampling, sample description, depth of sample collection, volume, and the number of sample containers. The corresponding sample identification number will be prominently listed.



Field Procedures

The field sampler will be personally responsible for the care and custody of the samples until the samples are transferred or properly dispatched. As few people as possible will handle the samples. The CQCSM will review all field activities to determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

Sample Numbering System

A unique sample numbering scheme will be used to identify each sample designated for laboratory analysis. Sample identification numbers will be used on all sample labels, field data sheets or logbooks, chain of custody records, and all other applicable documentation used during the project. The sample identification scheme to be used for the project is as follows:

Offsite backfill and topsoil samples will be labeled: CD-BF-xx or CD-TS-xx

CD-BF/CD-TS
 Project site and sample type (Cornell-Dubilier backfill sample or

Cornell-Dubilier topsoil sample)

xx
 Sequential sample number

Solid waste characterization samples will be labeled: CD-WC-xx

CD-WC Project site and sample type (Cornell-Dubilier waste characterization sample)
 xx
 Sequential sample number

Wastewater characterization samples will be labeled: CD-WW-xx

CD-WW Project site sand sample type (Cornell-Dubilier wastewater

sample)

xx
 Sequential sample number

Sample Labeling

Self-adhesive labels will be affixed to each sample container. The sample label will be completed in indelible ink and will include the following information:

- Project name
- Sample ID number
- Date and time of sample collection
- Sampler's initials
- Sample type (i.e., matrix)
- Preservative used, if any
- Analyses requested

Sample labels will be affixed to the sample containers and covered with clear packaging tape.

Chain of Custody Procedures

The COC form serves as an official communication to the laboratory detailing the particular analyses required for each sample. The COC record will accompany the samples from the time of sampling through all transfers of custody. The sample collector will complete a COC record to accompany each delivery container and will be responsible for shipping samples to the laboratory.

An example COC form is included in Appendix 5. The COC form and sample shipment documentation will be faxed or e-mailed to the laboratory when samples are shipped. The following information is typically recorded on manual COC forms:

Project name and/or project number



- Signature of field sampler
- Field sample identification number
- Date and time of sample collection
- Grab or composite sample designation
- Sample matrix
- Analyses required
- Preservation technique
- Signatures and dates for transfer of custody
- Air express/shipper's bill of lading identification number

Lines not used on the COC record will be crossed out. A second member of the field sampling team will review the completed COC record to assure that required information is not omitted and that unused lines are crossed out. The original signature copy of the COC record will be enclosed in a plastic bag and secured to the inside of the cooler lid. A copy of the COC record will be retained for project files.

Packaging and Shipping Procedures

As an aid to field personnel and as part of the site QC inspections, Sevenson Checklist Number 007, "Task Specific QC Checklist – Packing, Storing, and Shipment of Samples" and Sevenson Checklist Number 010, "Task Specific Checklist – Sample Cooler Shipment" are included in Appendix 5. All samples will be packaged and labeled for shipment in compliance with current regulations. All samples should be shipped to the project laboratory within 24 hours of sample collection via overnight courier service to ensure timely receipt of the samples by the laboratory. The shipment of samples on Friday is discouraged unless it is absolutely necessary and the laboratory has assured that personnel will be present to receive the shipment on Saturday and implement any necessary processing within the analytical holding times.

Samples should be prepared for shipment as follows:

- Samples will immediately be placed in a cooler filled with ice for temporary storage prior to shipment to the laboratory. Sample labels are placed on samples immediately after sample collection.
- Secure the lid of the sample jar tightly. Wrap the sample jar with bubble wrap. Place each sample jar in a separate ziplock-style plastic bag and seal.
- Only metal or plastic ice chests will be used for shipping samples. Tape shut any drain plugs on both the inside and outside of the cooler. Place a new, clean garbage bag inside the cooler as a secondary liner.
- Place bubble wrap or other suitable, waterproof packaging material between each sample bag to take up any void space in the cooler and to prevent the containers from touching. Place a temperature blank (i.e., a small bottle or jar filled with water) in close proximity to the sample containers.
- Ice used in coolers for shipping to the laboratories will be placed in doubled ziplock-style bags with a minimum amount of air. Use an adequate amount of ice bags such that the samples arrive at the laboratory at 4°C. Secure the secondary cooler liner with a twist-tie or knot.
- The COC record will be placed inside a ziplock-style bag and taped to the inside of the cooler top.
- The cooler will be closed and taped shut with packing tape or duct tape, and a custody seal will be properly placed across two sides of the cooler lid, preferably one on the front and one on the side.
- The shipping air bill will be securely attached to the exterior of the cooler. Commercial carriers or sample pickup couriers are not required to sign the COC record if it is sealed inside the shipping cooler and the custody seals remain intact. A copy of the bill of lading must be retained in the project files.



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Laboratory Chain of Custody Procedures

The laboratory sample custodian will reconcile the information on the COC records with the sample bottles received and sign and date all appropriate receiving documents. The sample custodian will document any anomalies and report these to the laboratory project manager. Anomalies will be resolved with the field sampler or CQCSM. The information will be entered in the Laboratory Information Management System (LIMS) along with the analyses being requested. To ensure traceability of samples while in possession of the laboratory, a method for sample identification that has been documented by the laboratory will be used to assign internal sample numbers. The sample custodian is responsible for seeing that all samples are transferred to the proper analyst or stored in the appropriate secure area. Laboratory personnel are responsible for the care and custody of samples from the time they are received, until the sample is exhausted or returned to the custodian using an internal COC record to track sample movement within the laboratory. When sample analyses and necessary QA checks have been completed in the laboratory, the unused portion of the sample will be disposed of properly. All identifying stickers, data sheets, and laboratory records are retained as part of the documentation. Sample containers and remaining samples are disposed of in compliance with federal, state, and local regulatory requirements.

Final Evidence Field Custody Procedures

The evidence files for the project are maintained at the Sevenson office. The content of the evidence file will include all relevant records, reports, correspondence, logs, field logbooks, laboratory sample preparation and analysis logbooks, data packages, pictures, subcontractor reports, chain of custody records, data review reports, etc. The evidence file will be under custody of the contractor project manager in a locked, secure area. The selected contract laboratory will also retain evidence files of analytical data for a minimum of seven years.



QAPP Worksheet #28-1 QC Samples Table

Matrix	Offsite Backfill
Analytical Group	Metals and Cyanide
Concentration Level	Low
Sampling SOP	Worksheet #17-1
Analytical Method/ SOP Reference	100.0004, 100.0012, 100.0111
Sampler's Name	To Be Determined (TBD)
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Calibration blank	Before beginning a sample run, after every 10 samples, and at the end of the analytical sequence	Per QAPP and laboratory SOP	Correct problem. Re-prep and reanalyze calibration blank. All samples following the last acceptable calibration blank must be reanalyzed.	Laboratory analyst	Sensitivity, Accuracy	No analytes detected >LOD
Method Blank	One per preparatory	Per QAPP and laboratory SOP	Correct problem. If required, reprep and reanalyze method blank and all samples processed with the contaminated blank.	Laboratory analyst	Sensitivity, Accuracy	No analytes detected >1/2 RL and >1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater). Blank result must not otherwise affect sample results. For common laboratory contaminants, no analytes detected >RL.
ICS (required for method SW846 6010C only)	The beginning of an analytical run	Per QAPP and laboratory SOP	Terminate analysis; locate and correct problem; reanalyze ICS and all samples	Laboratory analyst	Precision, Accuracy	ICS-A: Absolute value of concentration for all non-spiked analytes <lod. ics-ab:="" of="" td="" true="" value<="" within="" ±20%=""></lod.>

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹	
MS	One per preparatory batch per matrix	Per QAPP and laboratory SOP	Examine the project-specific DQOs. If the MS falls outside of criteria, additional quality control tests are required to evaluate matrix effects.	Laboratory analyst	Accuracy	Recovery: 80-120%	
Laboratory Duplicate	One per preparatory batch per matrix	Per QAPP and laboratory SOP	Examine the project-specific DQOs. Contact the client as to additional measures to be taken	Laboratory analyst	Precision	RPD ≤20% between sample and sample duplicate	
LCS	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	Laboratory analyst	Accuracy	Recovery: 80-120%	
Serial Dilution	One per preparatory batch	Per QAPP and laboratory SOP	SW846 6010C: Perform PDS addition SW846 7471B: Perform recovery test	Laboratory analyst	Precision, Accuracy	Five-fold dilution must agree within ±10% of the original sample	
PDS (required for method SW846 6010C only)	When dilution test fails or analyte concentration in all samples <50x LOD	Per QAPP and laboratory SOP	Run all associated samples in the preparatory batch by method of standard additions (MSA) or for the specific analytes in the parent sample, apply J flag if acceptance criteria are not met.	Laboratory analyst	Accuracy	Recovery: 75-125%	
Recovery Test (required for method SW846 7471B only)	When dilution test fails or analyte concentration in all samples <25x LOD	Per QAPP and laboratory SOP	Run all associated samples in the preparatory batch by MSA or for the specific analytes in the parent sample, apply J flag if acceptance criteria are not met.	Laboratory analyst	Accuracy	Recovery: 85-115%	

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QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Temperature	One per sample cooler	Per QAPP	Determine effect on project	Sevenson	Accuracy	4±2°C
Blank			DQOs; proceed with analysis	Project		
			or recollect samples	Chemist		

¹ The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #28-2 QC Samples Table

Matrix	Offsite Backfill
Analytical Group	VOCs, SVOCs, Pesticides, PCBs
Concentration Level	Trace (VOCs), Low (SVOCs, Pesticides, PCBs)
Sampling SOP	Worksheet #17-1
Analytical Method/ SOP Reference	60.0003, 60.0006, 70.0011, 90.0012
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Method Blank	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem. If required, reprep and reanalyze method blank and all samples processed with the contaminated blank.	Laboratory analyst	Sensitivity, Accuracy	No analytes detected >1/2 RL and >1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater). Blank result must not otherwise affect sample results. For common laboratory contaminants, no analytes detected >RL.
Surrogate Spike	All field and QC samples	Per QAPP and laboratory SOP	Correct problem then reprep and reanalyze all failed samples for the failed surrogates in the associated preparatory batch, if sufficient sample material is available. If obvious chromatographic interference with surrogate is present, reanalysis may not be necessary.	Laboratory analyst	Accuracy	Must meet laboratory in-house control limits (Appendix 4)
LCS	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	Laboratory analyst	Accuracy	Must meet laboratory in-house control limits (Appendix 4)

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QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
MS/MSD	One per preparatory batch	Per QAPP and laboratory SOP	Examine the project-specific DQOs. Contact the client as to additional measures to be taken	Laboratory analyst	Precision, Accuracy	Must meet laboratory in-house control limits (Appendix 4)
Temperature Blank	One per sample cooler	Per QAPP	Determine effect on project DQOs; proceed with analysis or recollect samples	Sevenson Project Chemist	Accuracy	4±2°C

The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #28-3 QC Samples Table

Matrix	Offsite Backfill
Analytical Group	Radiological Parameters
Concentration Level	Low
Sampling SOP	Worksheet #17-1
Analytical Method/ SOP Reference	PGH-R-023-5
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Method Blank	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem. If required, reprep and reanalyze method blank and all samples processed with the contaminated blank.	Laboratory personnel	Accuracy, Sensitivity	All target compounds ≤RL
Laboratory Duplicate	One per preparatory batch	Per QAPP and laboratory SOP	Examine the project-specific data quality objectives. Contact the client as to additional measures to be taken.	Laboratory Personnel	Precision, Accuracy	Should meet NAD criteria of ≤3.92
LCS	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes if sufficient sample material is available.	Laboratory personnel	Accuracy	Must meet laboratory in-house control limits (Appendix 4)

¹ The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #28-4 QC Samples Table

Matrix	Solid and Liquid Waste Characterization
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Analytical Group	TCLP Metals (solid waste characterization to also include copper, nickel, and zinc)
Concentration Level	Low to Medium
Sampling SOP	Worksheet #17-2 and #17-3
Analytical Method/ SOP Reference	100.0012, 100.0111
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Calibration blank	Before beginning a sample run, after every 10 samples, and at the end of the analytical sequence	Per QAPP and laboratory SOP	Correct problem. Re-prep and reanalyze calibration blank. All samples following the last acceptable calibration blank must be reanalyzed.	Laboratory analyst	Sensitivity, Accuracy	No analytes detected >LOD
Method Blank	One per preparatory	Per QAPP and laboratory SOP	Correct problem. If required, reprep and reanalyze method blank and all samples processed with the contaminated blank.	Laboratory analyst	Sensitivity, Accuracy	No analytes detected >1/2 RL and >1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater). Blank result must not otherwise affect sample results. For common laboratory contaminants, no analytes detected >RL.
ICS (required for method SW846 6010C only)	The beginning of an analytical run	Per QAPP and laboratory SOP	Terminate analysis; locate and correct problem; reanalyze ICS and all samples	Laboratory analyst	Precision, Accuracy	ICS-A: Absolute value of concentration for all non-spiked analytes <lod. ics-ab:="" of="" td="" true="" value<="" within="" ±20%=""></lod.>

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QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
MS	One per preparatory batch per matrix	Per QAPP and laboratory SOP	Examine the project- specific DQOs. If the MS falls outside of criteria, additional quality control tests are required to evaluate matrix effects.	Laboratory analyst	Accuracy	Recovery: 80-120%
Laboratory Duplicate	One per preparatory batch per matrix	Per QAPP and laboratory SOP	Examine the project- specific DQOs. Contact the client as to additional measures to be taken	Laboratory analyst	Precision	RPD ≤20% between sample and sample duplicate
LCS	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	Laboratory analyst	Accuracy	Recovery: 80-120%
Serial Dilution	One per preparatory batch	Per QAPP and laboratory SOP	SW846 6010C: Perform PDS addition SW846 7470A: Perform recovery test	Laboratory analyst	Precision, Accuracy	Five-fold dilution must agree within ±10% of the original sample
PDS (required for method SW846 6010C only)	When dilution test fails or analyte concentration in all samples <50x LOD	Per QAPP and laboratory SOP	Run all associated samples in the preparatory batch by MSA or for the specific analytes in the parent sample, apply J flag if acceptance criteria are not met.	Laboratory analyst	Accuracy	Recovery: 75-125%
Recovery Test (required for method SW846 7470A only)	When dilution test fails or analyte concentration in all samples <25x LOD	Per QAPP and laboratory SOP	Run all associated samples in the preparatory batch by MSA or for the specific analytes in the parent sample, apply J flag if acceptance criteria are not met.	Laboratory analyst	Accuracy	Recovery: 85-115%



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QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Temperature Blank	One per sample cooler	Per QAPP	Determine effect on project DQOs; proceed with analysis or recollect samples	Sevenson Project Chemist	Accuracy	4±2°C

¹ The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #28-5 QC Samples Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, PCBs
Concentration Level	Low to High
Sampling SOP	Worksheet #17-2 and #17-3
Analytical Method/ SOP Reference	60.0003, 60.0006, 60.0034, 70.0011, 90.0012
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Method Blank	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem. If required, reprep and reanalyze method blank and all samples processed with the contaminated blank.	Laboratory analyst	Sensitivity, Accuracy	No analytes detected >1/2 RL and >1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater). Blank result must not otherwise affect sample results. For common laboratory contaminants, no analytes detected >RL.
Surrogate Spike	All field and QC samples	Per QAPP and laboratory SOP	Correct problem then reprep and reanalyze all failed samples for the failed surrogates in the associated preparatory batch, if sufficient sample material is available. If obvious chromatographic interference with surrogate is present, reanalysis may not be necessary.	Laboratory analyst	Accuracy	Must meet laboratory in-house control limits (Appendix 4)
LCS	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	Laboratory analyst	Accuracy	Must meet laboratory in-house control limits (Appendix 4)

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QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
MS/MSD	One per preparatory batch	Per QAPP and laboratory SOP	Examine the project-specific DQOs. Contact the client as to additional measures to be taken	Laboratory analyst	Precision, Accuracy	Must meet laboratory in-house control limits (Appendix 4)
Temperature Blank	One per sample cooler	Per QAPP	Determine effect on project DQOs; proceed with analysis or recollect samples	Sevenson Project Chemist	Accuracy	4±2°C

The laboratory will be required to achieve their method-specific control limit criteria.

QAPP Worksheet #28-6 QC Samples Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	Reactivity (Sulfide and Cyanide)
Concentration Level	Low
Sampling SOP	Worksheet #17-2 and #17-3
Analytical Method/ SOP Reference	100.0015
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Method Blank	One per preparatory batch	Per QAPP and laboratory SOP	Reprocess affected samples in a subsequent preparation batch, except when sample results are below the MDL. If insufficient sample volume remains for reprocessing, the results will be reported with appropriate data qualifiers.	Laboratory analyst	Sensitivity, Accuracy	Absolute values of all analyte concentrations must be \leq RL
LCS	One per preparatory batch	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	Laboratory analyst	Accuracy	Must meet laboratory in-house control limits (Appendix 4)
Laboratory Duplicate	One per preparatory batch	Per QAPP and laboratory SOP	Reanalyze	Laboratory analyst	Precision, Accuracy	Must meet laboratory in-house control limits (Appendix 4)
Temperature Blank	One per sample cooler	Per QAPP	Determine effect on project DQOs; proceed with analysis or recollect samples	Sevenson Project Chemist	Accuracy	4±2°C

¹ The laboratory will be required to achieve their method-specific control limit criteria.



QAPP Worksheet #28-7 QC Samples Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	Ignitability
Concentration Level	NA
Sampling SOP	Worksheet #17-2 and #17-3
Analytical Method/ SOP Reference	100.0024
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC ¹
Laboratory Duplicate	One per batch of 20 samples	Per QAPP and laboratory SOP	Re-prepare and reanalyze	Laboratory analyst	Accuracy	Must meet laboratory in-house control limits (Appendix 4)
LCS	One per batch of 20 samples	Per QAPP and laboratory SOP	Correct problem, then reprep and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample material is available.	Laboratory analyst	Precision/Accuracy	Must meet laboratory in-house control limits (Appendix 4)
Temperature Blank	One per sample cooler	Per QAPP	Determine effect on project DQOs; proceed with analysis or recollect samples	Sevenson Project Chemist	Accuracy	4±2°C

The laboratory will be required to achieve their method-specific control limit criteria.



QAPP Worksheet #28-8 QC Samples Table

Matrix	Solid and Liquid Waste Characterization
Analytical Group	рН
Concentration Level	NA
Sampling SOP	Worksheet #17-2 and #17-3
Analytical Method/ SOP Reference	100.0112
Sampler's Name	TBD
Field Sampling Organization	Sevenson
Analytical Organization	Spectrum
No. of Sample Locations	See Worksheet #18

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	CA	Person(s) Responsible for CA	DQI	MPC
Initial Calibration	One per preparatory	Per QAPP and	Recalibrate pH meter; reanalyze	Laboratory analyst	Sensitivity	-
Verification	batch	laboratory SOP				temperature adjusted pH value
Continuing	One per preparatory	Per QAPP and	Recalibrate pH meter; reanalyze	Laboratory analyst	Sensitivity	±0.05 pH unit of the
Calibration	batch	laboratory SOP				temperature adjusted pH
Verification						value
Laboratory	One per preparatory	Per QAPP and	Recalibrate pH meter; reanalyze	Laboratory analyst	Precision	Must agree within ± 0.10
Duplicate	batch	laboratory SOP				pH units
Temperature Blank	One per sample cooler	Per QAPP	Determine effect on project	Sevenson Project	Accuracy	4±2°C
			DQOs; proceed with analysis or	Chemist		
			recollect samples			

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QAPP Worksheet #29 Project Documents and Records

Sample Collection Documents and Records	On-Site Analysis Documents and Records	Off-Site Analysis Documents and Records	Data Assessment Documents and Records	Other
 Field logbooks Chain of custody records Air bills Custody seals Field Change Request forms Corrective Action forms Daily Chemical Quality Control Reports Photo logs 	 Not applicable – no onsite analysis will be performed. 	 Sample receipt, chain of custody forms, and sample tracking records Equipment calibration logs Sample preparation logs Case narrative, data packages Definition of laboratory qualifiers Equipment maintenance, testing, and inspection logs Corrective action forms Reported field sample results Electronic data deliverables Reported results with standards, QC checks, and QC samples Instrument printouts for field samples, standards, and QC samples Data package completeness checklists Technical/QA forms Data assessment reports Extraction/cleanup records Sample disposal records 	 Field sampling audit checklists Offsite laboratory audit checklists Data review reports Corrective action forms Telephone logs 	 Disposal facility waste approval forms Waste shipping manifests and/or bill-of-lading

QAPP Worksheet #30 Analytical Services Table

Matrix	Analytical Group	Concentration Level	Sample Locations/ID Number	Analytical SOP	Data Package Turnaround Time ¹	Laboratory/ Organization (name and address, contact person and telephone number)	Backup Laboratory/ Organization (name and address, contact person and telephone number)
Offsite backfill	VOCs SVOCs Pesticides PCBs Metals Cyanide Radiological Parameters	Trace to Low	Offsite backfill and topsoil sources	90.0012 70.0011 60.0006 60.0003 100.0012, 100.0111 100.0004 PGH-R-023-5	Preliminary Data: 5 days Full Deliverable: 30 days	Spectrum Agnes Huntley 175 Metro Center Blvd. Warwick, RI 02886 (401) 732-3400	A backup laboratory has not been assigned.
Solid Waste Characterization ²	TCLP VOCs TCLP SVOCs TCLP Pesticides TCLP Herbicides TCLP Metals PCBs pH Ignitability Reactive Cyanide Reactive Sulfide	Low to High	In-situ from predetermined excavation areas	90.0012 70.0011 60.0006 60.0034 100.0012, 100.0111 60.0003 100.0112 100.0024 100.0015 100.0015	Preliminary Data: 5 days Full Deliverable: 30 days	Spectrum Agnes Huntley 175 Metro Center Blvd. Warwick, RI 02886 (401) 732-3400	A backup laboratory has not been assigned.
Solid Waste Characterization	PCBs	Low to High	In-situ from predetermined excavation areas	60.0003	Preliminary Data: 5 days Full Deliverable: 30 days	Spectrum Agnes Huntley 175 Metro Center Blvd. Warwick, RI 02886 (401) 732-3400	A backup laboratory has not been assigned.

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Matrix	Analytical Group	Concentration Level	Sample Locations/ID Number	Analytical SOP	Data Package Turnaround Time ¹	Laboratory/ Organization (name and address, contact person and telephone number)	Backup Laboratory/ Organization (name and address, contact person and telephone number)
Liquid Waste	TCLP VOCs	Low to High	Storage tanks	90.0012	Preliminary Data: 5	Spectrum	A backup laboratory has not
Characterization ²	TCLP SVOCs TCLP Pesticides			70.0011 60.0006	days	Agnes Huntley 175 Metro Center Blvd.	been assigned.
	TCLP Pesticides TCLP Herbicides			60.0034	Full Deliverable: 30	Warwick, RI 02886	
	TCLP Metals			100.0012, 100.0111	days	(401) 732-3400	
	PCBs			60.0003			
	pН			100.0112			
	Ignitability			100.0024			
	Reactive Cyanide			100.0015			
	Reactive Sulfide			100.0015			

The full deliverable is defined as the complete analytical data report with laboratory quality control results and EDD which will be reviewed by Sevenson. The Sevenson data review will be completed within 7 days of receipt of the full deliverable from the laboratory.

Additional analytes may be required by the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample

collection in order to verify the analytical requirements.

QAPP Worksheet #31 Planned Project Assessments Table

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment	Person(s) Responsible for Responding to Assessment Findings	Person(s) Responsible for Identifying and Implementing CA	Person(s) Responsible for Monitoring Effectiveness of CA
Specific field procedure assessment and UFP-QAPP compliance	Initially within the first week and the at least quarterly if necessary	Internal	Sevenson self assessment	William Zambrana, Sevenson CQCSM	Sevenson Field Team Leader	Sevenson Field Team Leader	William Zambrana, Sevenson CQCSM Sevenson Field Team Leader
Data review	As data becomes available from the laboratory	Internal and External	Sevenson project chemist Laboratory QA Officer	Jennifer Singer, Sevenson Project Chemist Laboratory QA Officer	Jennifer Singer, Sevenson Project Chemist Laboratory QA Officer	Jennifer Singer, Sevenson Project Chemist Laboratory QA Officer	Jennifer Singer, Sevenson Project Chemist Laboratory QA Officer
Data review to assign regulatory status of materials for offsite disposal	As data becomes available from the laboratory	Internal	Sevenson regulatory specialist	Ken Paisley, Sevenson Regulatory Specialist/Waste Disposal Coordinator	Ken Paisley, Sevenson Regulatory Specialist/Waste Disposal Coordinator	Ken Paisley, Sevenson Regulatory Specialist/Waste Disposal Coordinator	Ken Paisley, Sevenson Regulatory Specialist/Waste Disposal Coordinator
Daily field documentation review	Daily	Internal	Sevenson self assessment	William Zambrana, Sevenson CQCSM	Sevenson Field Team Leader	Sevenson Field Team Leader	William Zambrana, Sevenson CQCSM Sevenson Field Team Leader
Health and safety audit	Initially within the first week of field work and then at least quarterly if necessary	Internal	Sevenson self assessment	Eric Tschudi, Sevenson SSHO	Kim Lickfield, Sevenson Project Manager	Sevenson Field Team Leader	Eric Tschudi, Sevenson SSHO

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QAPP Worksheet #32

Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response	Timeframe for Response
Data validation	Laboratory	Laboratory QA	After arrival of	Corrective action	Jennifer Singer,	7 business days
	resubmissions	officer	data from the	reports and/or updated	Sevenson Project	
			lab and during	case narratives and	Chemist	
			data validation	corrected data		
			activities	submissions		
Daily field	Internal letter and any	Kim Lickfield,	1 business day	Plan for correction	Kim Lickfield,	1 business day
documentation	verification	Sevenson Project		and verification that	Sevenson Project	
reviews	documentation	Manager		correction is complete	Manager	
Internal project	Internal report	Kim Lickfield,	7 business days	Response to comment	Kim Lickfield,	7 business days
reporting reviews	comments	Sevenson Project		and applicable report	Sevenson Project	
		Manager		correction	Manager	
Health and safety	Written audit report	Kim Lickfield,	3-5 business	Letter and any	Sevenson Field Team	24 hours after
audit		Sevenson Project	days	verification	Leader	notification
		Manager		documentation		

QAPP Worksheet #33 QA Management Reports Table

Type of Report	Frequency	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation	Report Recipient(s)
Daily Chemical Quality Control Report	Daily during field work	Duration of field activities	Sevenson Field Team Leader	Kim Lickfield, Sevenson Project Manager USACE
Field Audit Report	Initially within the first two weeks of field work and with follow-up audits if significant deficiencies are found	Month after field work begins	William Zambrana, Sevenson CQCSM	Kim Lickfield, Sevenson Project Manager
Corrective Action Report	When corrective action is required	When corrective action is implemented	William Zambrana, Sevenson CQCSM	Kim Lickfield, Sevenson Project Manager
Data Review Report	After laboratory data is received	Within 45 days after receiving data	Jennifer Singer, Sevenson Project Chemist	William Zambrana, Sevenson CQCSM Kim Lickfield, Sevenson Project Manager
Quality Control Summary Report	After all lab data is received and reviewed	Within 45 days after receipt of the last laboratory data report	Jennifer Singer, Sevenson Project Chemist	USACE, USEPA
Health and Safety Audit	Once	Submitted with Final Reports	Eric Tschudi, Sevenson SSHO	USACE, USEPA

QAPP Worksheet #34 Verification (Step I) Process Table

Verification Input	Description	Internal/ External	Responsible for Verification
Chain of custody and shipping forms	COC forms and shipping documentation will be reviewed internally upon their completion and verified against the packed sample coolers they represent. The shipper's signature on the COC will be initialed by the reviewer, a copy of the COC retained in the site files, and the original and remaining copies taped inside the cooler for shipment. Refer to Worksheet #27 for additional details.	Internal	William Zambrana, Sevenson
Audit reports	Upon report completion, a copy of all audit reports will be placed in the site file. If corrective actions are required, a copy of the documented corrective action will be attached to the appropriate audit report in the site file. Copies of Sevenson's internal QC checklists, corrective action forms, and field change request forms are included in Appendix 5.	Internal	William Zambrana, Sevenson
Field notes	Field notes will be reviewed internally at the end of each working day and placed in the site file.	Internal	William Zambrana, Sevenson
Laboratory data	All laboratory packages will be verified internally by the laboratory performing the work for completeness and technical accuracy prior to submittal. All data packages will be verified internally by the Sevenson project chemist or designee according to the data review procedures specified in Worksheet #36.	Internal/External	Laboratory QA Officer Jennifer Singer, Sevenson
UFP-QAPP	All planning documents will be available to reviewers to allow reconciliation with planned activities and objectives.	Internal	William Zambrana, Sevenson Jennifer Singer, Sevenson

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QAPP Worksheet #35 Validation (Steps IIa and IIb) Process Table

Step IIa / IIb	Validation Input	Description	Responsible for Validation
IIa	Laboratory data packages	Ensure that all analytical procedures were followed. Corrective actions will be taken and documented when applicable per specific methods. Data will be qualified in accordance with specific methods. Any deviations will	Laboratory personnel Jennifer Singer, Sevenson
IIa	Documentation of method QC results	be documented. Establish that all method required QC samples were run and met required limits.	Laboratory personnel Jennifer Singer, Sevenson
IIb	Documentation of UFP-QAPP QC sample results	Establish that all UFP-QAPP required QC samples were run and met required limits.	Laboratory personnel Jennifer Singer, Sevenson
IIb	Project quantitation limits	All sample results met the project quantitation limit specified in the UFP-QAPP.	Laboratory personnel Jennifer Singer, Sevenson
IIb	Sampling procedures	Evaluate whether sampling procedures were followed with respect to equipment and proper sampling support.	William Zambrana, Sevenson Jennifer Singer, Sevenson
IIb	Deviations (sampling and analysis)	Determine the impacts of any deviations from sampling or analytical methods and SOPs	William Zambrana, Sevenson Jennifer Singer, Sevenson USACE USEPA

QAPP Worksheet #36 Validation (Steps IIa and IIb) Summary Table

Step IIa / IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria	Data Validator
IIa/IIb	Offsite backfill	Metals, cyanide, VOCs, SVOCs, PCBs, pesticides, and radiological parameters	Trace to Low	USEPA Region II Criteria ¹ Radiological: MARLAP, Chapter 8, Section 5	Jennifer Singer, Sevenson Data Quality Control Review Chemist
IIa/IIb	Solid Waste Characterization ²	TCLP VOCs, SVOCs, Pesticides, Herbicides, Metals PCBs RCRA Characteristics (pH, ignitability, reactive cyanide, reactive sulfide)	Low to High	USEPA Region II Criteria ¹	Jennifer Singer, Sevenson Data Quality Control Review Chemist
IIa/IIb	Solid Waste Characterization	PCBs	Low to High	USEPA Region II Criteria ¹	Jennifer Singer, Sevenson Data Quality Control Review Chemist
IIa/IIb	Liquid Waste Characterization ¹	TCLP VOCs, SVOCs, Pesticides, Herbicides, Metals PCBs RCRA Characteristics (pH, ignitability, reactive cyanide, reactive sulfide)	Low to High	USEPA Region II Criteria ¹	Jennifer Singer, Sevenson Data Quality Control Review Chemist

Data will be reviewed using ADR software as discussed in Worksheet #11 for the parameters included in Worksheet #14. PCB calibration and radiological results will be reviewed manually. The software was developed based on USEPA Region II criteria. USEPA Region II criteria include: *CLP Organics Data Review and Preliminary Data Review* (SOP #HW-6, Revision #14, September 2006) and *Validation of Metals for the CLP Based on SOW ILM05.3* (SOP #HW-2, Revision #13, September 2006).

² Additional analytes may be required by the offsite disposal facility. The Waste Disposal Coordinator should be contacted prior to sample collection in order to verify the analytical requirements.



QAPP Worksheet #37 Usability Assessment

Summarize the usability assessment and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:

It is the responsibility of the Sevenson Project Chemist and the laboratory to ensure that the data meet the method detection limits, reporting limits, and laboratory QC limits listed in the UFP-QAPP. During the data validation assessment, non-conformances are documented and data are qualified for use in decision making. The data are determined to be usable by the Project Chemist based on the requirements of this UFP-QAPP. Data gaps will be present if a sample is not collected, a sample is not analyzed for the requested parameters, or the data are determined to be unusable. The need for further investigation will be determined on a case-by-case basis, depending on whether data can be extrapolated from adjacent sampling locations, and whether or not the results are unnecessary based on the results from adjacent locations. All data are usable as qualified by the data validator, with the exception of rejected data. Estimated and/or biased results are usable.

Describe the evaluative procedures used to assess overall measurement error associated with the project:

In depth assessment occurs during the data validation process. The validation will follow approved USEPA Region 2 Guidelines and SOPs to assess conformance with the requirements of the methods, SOPs, and objectives of this UFP-QAPP. The findings of the data validation will generate qualifiers applied to the data considered in context to assess overall usability of the data.

Identify the personnel responsible for performing the usability assessment:

Jennifer Singer, Sevenson Project Chemist

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:

The data validation reports will identify precision and accuracy exceedances with respect to the laboratory performance for each batch of samples, as well as comparability of field and laboratory duplicates. All the results will be assembled and reported for an overall quality assessment provided in the QCSR and final project report. Discussion will cover precision, accuracy/bias, sensitivity, representativeness, comparability, completeness, and reconciliation, defined as follows.

Precision. Results of laboratory duplicates will be assessed during data review and data will be qualified according to the data review procedures cited on Worksheet #36. Field duplicate samples will not be collected due to the limited nature of the sampling. A discussion summarizing the results of laboratory precision and any limitations on the use of the data will be described in the QCSR.

Accuracy/Bias Contamination. Results of laboratory blanks will be assessed as part of data review. During the review process the reviewer will qualify the data following the procedures described on Worksheet #36. A discussion summarizing the results of laboratory accuracy and bias based on contamination will be presented and any limitation on the use of the data will be described in the QCSR.



Page 119

Overall Accuracy/Bias. The results of matrix spike recoveries will be reviewed and data will be qualified according to the data review procedures cited on Worksheet #36. A discussion summarizing the results of laboratory accuracy and any limitations on the use of the data will be described in the QCSR.

Sensitivity. Data results will be compared to clean-up criteria provided on Worksheet #15. A discussion summarizing any conclusions about the sensitivity of the analyses will be presented and any limitations on the use of the data will be described in the OCSR.

Representativeness. A review of adherence to field procedures and of project quality control audits will be performed in order to assess the representativeness of the sampling program. Data review narratives will also be reviewed and any conclusions about the representativeness of the data set will be discussed.

Comparability. Data will be collected, analyzed, and reported in a manner that is comparable to the existing site data.

Completeness. A completeness check will be done on all data generated by the laboratory. Completeness will be calculated for each analyte as follows. For sampling, completeness will be calculated as the number of samples collected and analyzed by the laboratory divided by the number planned for collection. Also for each analyte, completeness will be calculated as the number of data points for each analyte that meets measurement performance criteria divided by the total number of data points for that analyte. A discussion summarizing the results of project completeness and any limitations on the use of the data will be described in the QCSR.

Reconciliation. The project quality objectives presented in Worksheet #12 will be examined to determine if the objective was met. This examination will include a combined overall assessment of the results of each analysis pertinent to an objective. Each analysis will first be evaluated separately in terms of major impacts observed from data review, data quality indicators, and measurement performance criteria assessments. Based on the results of these assessments, the quality of the data will be determined. Based on the quality determined, the usability of the data for each analysis will be determined if the project quality objective was met and whether project goals were achieved. As part of the reconciliation of each objective, conclusions will be drawn and any limitations on the usability of any of the data will be described.

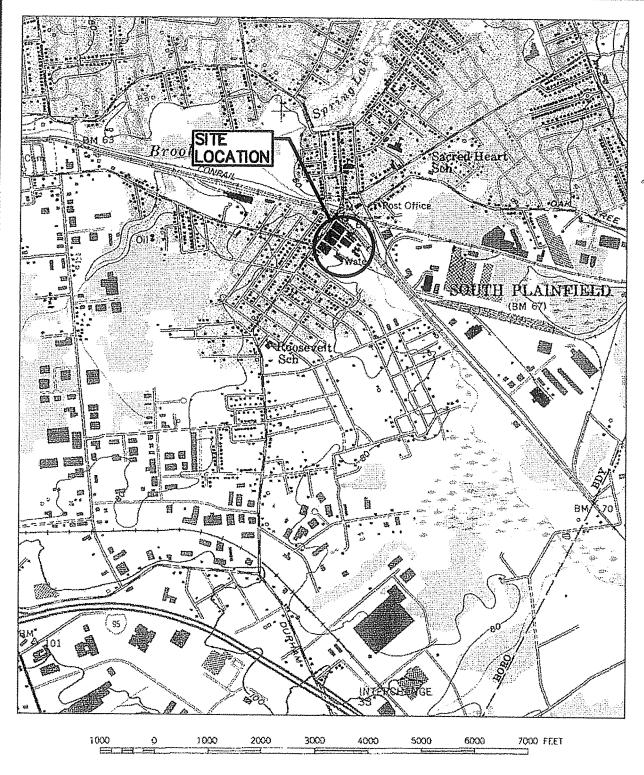


Title: Uniform Federal Policy – Quality Assurance Project Plan **Revision Number:** 2 **Revision Date:** 09/06/12 **Page 120**

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APPENDIX 1 FIGURES

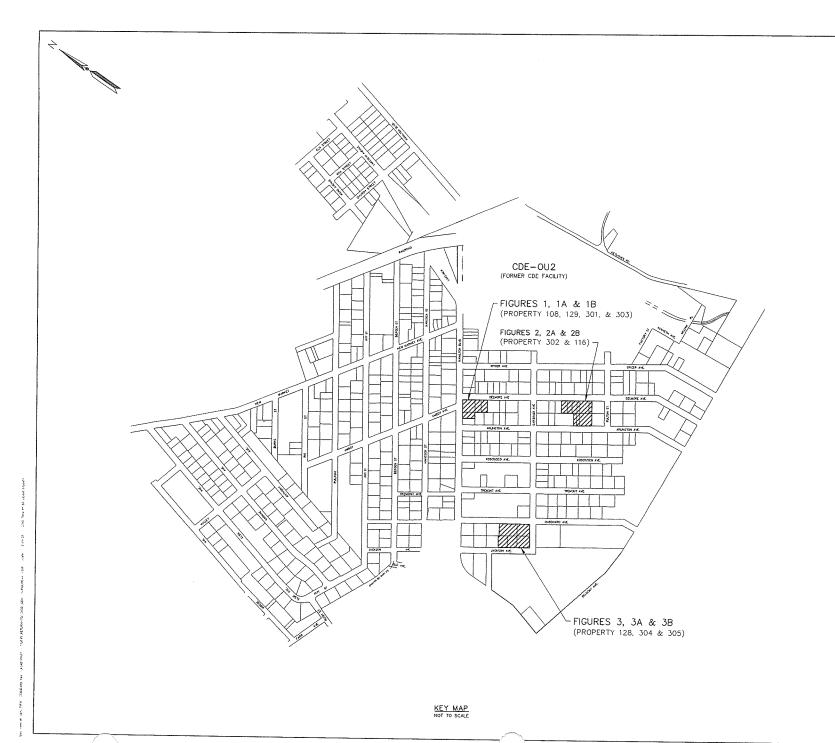


SOURCE: U.S.G.S. TOPOGRAPHIC MAP, 7.5 MINUTE SERIES, PLAINFIELD, NEW JERSEY QUADRANGLE, 1955, PHOTOREVISED 1981

MALCOLM

U.S. ARMY CORPS OF ENGINEERS
CORNELL—DUBILIER SUPERFUND SITE
OU—2 SOILS
SOUTH PLAINFIELD, NEW JERSEY
CONTRACT NO. W912DQ—06—D—0006
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SITE LOCATION MAP SCALE AS NOTED MALCOLM PIRNIE, INC.
JULY 2007
FIGURE 1-1



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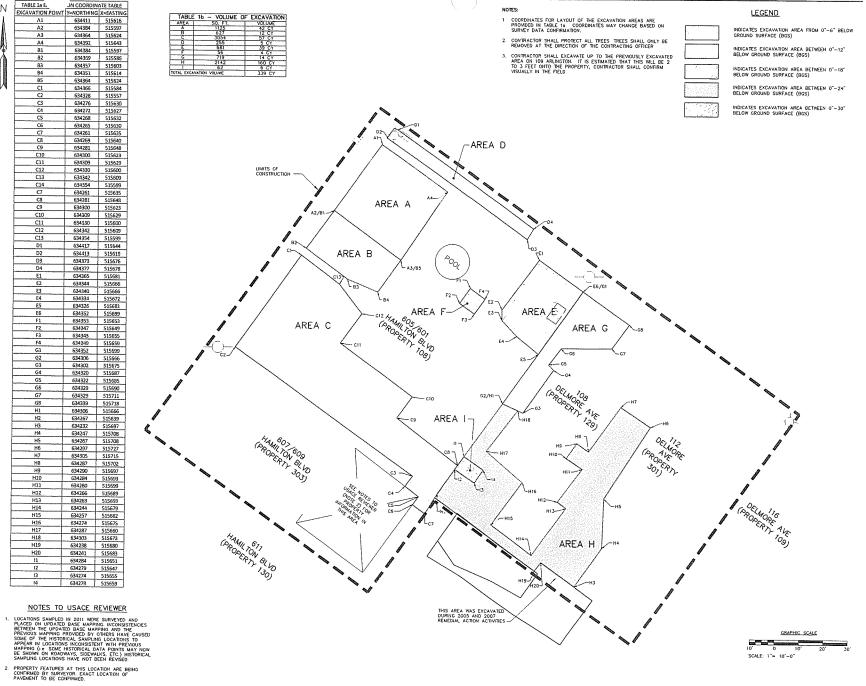


U.S. Army Corps of Engineers KANSAS CITY DISTRICT

OU—1 REMEDIAL DESIGN CORRELL—DOBLINE ELECTRONICS SUPERFIUND SITE SOUTH PLAINFELD, NEW JERSEY

KEY MAP

JOB NO:	
CONTRACT NO.	
SHEET NAME:	DRAWN BY: K. JAMICELI
K-1	DESIGNED BY: A MASON
SHEET 3 OF 15	CHECKED BY: B. GIRARD
FILE NAME:	DATE: JANUARY 2012



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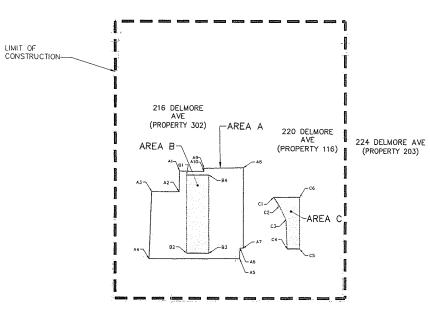


U.S. Army Corps of Engineers KANSAS CITY DISTRICT

OU-1 REMEDIAL DESIGN CORNELL-DUBILER ELECTRONICS SUPPERTUND SITE SOUTH PLANNELD, NEW JERSEY

PROPERTY 108, 129, 301 & 303 EXCAMATION PLAN

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JOB NO:	
CONTRACT NO:	
SHEET NAME:	DRAWN BY: K IAMICELI
FIGURE 1A	DESIGNED BY: A. MASON
SHEET 7 OF 15	CHECKED BY: B. GIRARD
FILE NAME:	DATE: JANUARY 2012



LEGEND

INDICATES EXCAVATION AREA FROM 0"-5" BELOW GROUND SURFACE (BGS)

INDIC BELO

INDICATES EXCAVATION AREA FROM 0"-24" BELOW GROUND SURFACE (BGS)

TABLE 2a EXCAVAT	ON COORDIN	ATE TABLE
EXCAVATION POINT		
A1	633888	516261
A2	633881	516256
A3	633888	516247
A4	633867	516231
A5	633845	516261
A6	633849	516263
A7	633848	516265
A8	633874	516283
A9	633883	516270
A10	633882	516269
61	633885	516263
B2	633859	516244
B3	633854	516252
B4	633880	516270
C1	633857	516287
C2	633853	516286
C3	633847	516285
C4	633837	516279
C5	633834	516283
C6	633851	516295

ABLE 2b -	VOLUME OF	EXCAVATION
AREA	5Q. FT.	VOLUME
Α	972	19 CY
B	291	22 CY
c	136	11 CY
TAL EXCAVA	TION VOLUME	52 CY

NOTES:

- COORDINATES FOR LAYOUT OF THE EXCAVATION AREAS ARE PROVIDED IN TABLE 20. COORDINATES MAY CHANGE BASED ON SURVEY DATA CONFIRMATION,
- CONTRACTOR SHALL PROTECT ALL TREES TREES SHALL ONLY BE REMOVED AT THE DIRECTION OF THE CONTRACTING OFFICER.

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U.S. Army Corps of Engineers KANSAS CITY DISTRICT

OU-1 REMEDM, DESIGN CORNEL-DUBLIER ELECTRONICS SUPERIUN SIE SOUTH PLAINFELD, NEW JERSEY

PROPERTY 116 & 302 EXCAMITION PLAN

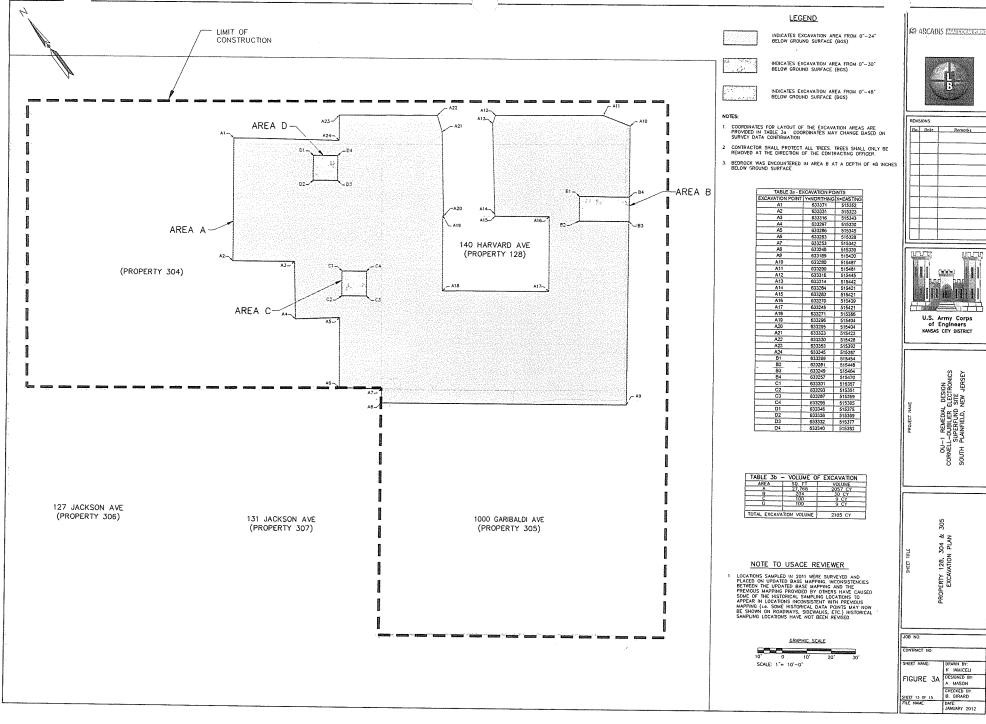
JOB NO:	
CONTRACT NO:	
SHEET NAME:	DRAWN BY: K IAMICELI
FIGURE 2A	DESIGNED BY: A MASON
SHEET 10 OF 15	CHECKED BY: B. GIRARD
FILE NAME	DATE: JANUARY 2012

NOTE TO USACE REVIEWER

stro "strokennom,žneny bonom, skrtytennom,žmejvo og "strokenom,žmejvo og "strokennom,žmenom,žmeno vetrokeno om «tereb de mest trasko tr. «nyembotnostivitentalnis» strokenski skrem se skrivitore oktolega ten i i knostapori

1. LOCATIONS SAMPLED IN 2011 WERE SURVEYED AND PLACED ON UPDATED BASE MAPPING, INCOMSISTENCES BETWEEN THE UPDATED BASE MAPPING, NICOMSISTENCES BETWEEN THE UPDATED BASE MAPPING, AND THE PREVIOUS MAPPING PROMODED BY OTHERS HAVE CAUSED SOME OF THE HISTOPICAL SAMPLING LOCATIONS TO APPEAR IN LOCATIONS INCOMSISTENT WITH PREVIOUS MAPPING LOCATIONS THOROUS INCOMSISTENT WITH PREVIOUS MAPPING LOCATIONS HOUR PROMODERS SOME HISTORICAL DATA POINTS MAY NOW BOWNING ON ROUMPANS, SEED WALKES, ETC.) HISTORICAL SAMPLING LOCATIONS HAVE NOT BEEN REVISED.





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APPENDIX 2 DATA NEEDS TABLE

Appendix 2

Data Needs Table

Operable Unit 1 – Soil Remediation Cornell-Dubilier Electronics Superfund Site South Plainfield, New Jersey

Data Need	Data User	Parameter	Method	Quantitation Limits	Rationale for Analysis	Data Use
Offsite backfill	Remedial	VOCs	SW846 8260B	See Worksheet	Parameters required by NJAC 7:26D.	Will be used by the
and topsoil	action team	SVOCs	SW846 8270D	#15 for project		remedial action team to
		Pesticides	SW846 8081B	QLs		verify that offsite backfill
		PCBs	SW846 8082A			and topsoil meet the
		Metals and	SW846			requirements of the NJDEP
		Mercury	6010C/7471B			Residential Direct Contact
		Cyanide	SW846 9012B			Soil Remediation
		Radiological	HASL-300 or			Standards (RDCSRS) prior
		Parameters	equivalent			to bringing the materials to
			gamma			the site
			spectroscopy			
			method			
Solid waste	Remedial	Ignitability	SW846 1010	See Worksheet	Parameters required by offsite disposal	Will be used to
characterization	action	pН	SW846 9045D	#15 for project	facility for waste characterization.	characterize the waste for
	team,		SW846 9040C	QLs	Additional analyses may be performed at	disposal at the appropriate
	offsite	Reactive	SW846 Section		the direction of the offsite disposal	offsite disposal facility
	disposal	Cyanide	7.4.3.2		facility. Sevenson's Waste Disposal	
	facility	Reactive	SW846 Section		Coordinator should be contacted prior to	
		Sulfide	7.4.4.3		sample collection in order to verify the	
		TCLP Metals	SW846		list of required laboratory analyses.	
		and Mercury	6010C/7470A			
		TCLP	SW846 8270D			
		SVOCs				
		TCLP	SW846 8081B			
		Pesticides				
		TCLP	SW846 8151A			
		Herbicides				
		PCBs	SW846 8082A			
		TCLP VOCs	SW-846 8260B			

Revision 1: September 6, 2012

Data Need	Data User	Parameter	Method	Quantitation Limits	Rationale for Analysis	Data Use
Liquid waste	Remedial	Ignitability	SW846 1010	See Worksheet	Parameters required by offsite disposal	Will be used to
characterization	action	pН	SW846 9045D	#15 for project	facility for waste characterization.	characterize the waste for
	team,		SW846 9040C	QLs		disposal at the appropriate
	offsite	Reactive	SW846 Section			offsite disposal facility
	disposal	Cyanide	7.4.3.2			
	facility	Reactive	SW846 Section			
		Sulfide	7.4.4.3			
		TCLP Metals	SW846			
		and Mercury	6010C/7470A			
		TCLP	SW846 8270D			
		SVOCs				
		TCLP	SW846 8081B			
		Pesticides				
		TCLP	SW846 8151A			
		Herbicides				
		PCBs	SW846 8082A			

APPENDIX 3 DATA QUALITY OBJECTIVES

Appendix 3

Data Quality Objectives

Operable Unit 1 – Soil Remediation Cornell-Dubilier Electronics Superfund Site South Plainfield, New Jersey

Data quality objectives (DQOs) are used to help decision makers collect data of the right type, quality, and quantity to support decisions. The approach to developing DQOs is designed to take decision makers through a strategic planning process from broad project goals through a number of refining steps towards generating environmental data that will be appropriate to making the decisions needed to reach the goals.

1.0 State the Problem

Work is being conducted at properties located in the vicinity of the former Cornell-Dubilier Electronics facility due to contamination found in soil associated with past industrial operations conducted at the facility. Elevated concentrations of contaminants of concern in soils, primarily polychlorinated biphenyls (PCBs) may pose a threat through direct contact and as a source of contamination to groundwater.

This task addresses the remediation of soils associated with Operable Unit 1 (OU-1) of the site. The USEPA signed a Record of Decision (ROD) for OU-1 in September 2003. The objectives of the current remedial action are:

- Excavation of an estimated 2,500 cubic yards of contaminated soil, backfilling with clean fill, and property restoration, as necessary.
- Transportation of contaminated soil to an offsite facility for disposal, with treatment as necessary.

2.0 Identify the Decision

To meet the objectives, the following fundamental questions will need to be answered during the investigation:

Do backfill and topsoil materials brought in from offsite sources pose a risk to human health or the environment? • What are the disposal facility requirements to classify the soils and debris excavated from the site under Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA) regulations?

3.0 Identify the Inputs to the Decision

The following inputs are required to answer the fundamental questions identified in Step 2 above:

- Review existing data. This includes analytical data as well as past practice and process history.
- Determine the appropriate analytical methods, keeping in mind that the methods must meet the sensitivities of the applicable regulatory limits and remediation goals.
- Collect soil samples to fully characterize the soils such that the offsite disposal facilities are satisfied.
- Collect backfill and topsoil samples to demonstrate that materials brought onsite are not hazardous to human health or the environment.

4.0 Define the Boundaries of the Study

The physical boundaries of the investigation have been defined as OU-1.

5.0 Develop a Decision Rule

The purpose of this step is to integrate the outputs from the previous steps into a statement that defines the conditions that would cause the decision makers to choose among alternative actions. The following primary decision rules will be used to answer the fundamental questions:

Waste characterization sample results will be compared against the 40CFR261 Characteristics of Hazardous Waste and 40CFR761 PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions to determine the disposal requirements. Any materials containing Resource Conservation and Recovery Act (RCRA) regulated constituents at concentrations greater than toxicity characteristic leachate procedure (TCLP) criteria will be disposed of as RCRA hazardous waste. Any materials containing concentrations of total PCBs greater than the regulatory standards will be disposed of as Toxic Substance Control Act (TSCA) regulated PCB remediation wastes. Any materials exceeding both criteria will be disposed of as RCRA/TSCA waste.

• Material used for backfill will be analyzed for organic compounds, inorganic compounds, and radioisotopes to ensure that the fill material does not exceed the cleanup criteria in New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Remediation Standards (RDCSRS) for chemical parameters and NJAC 7:28-12 for naturally occurring radioactive material (NORM).

6.0 Specify Limits on Decision Errors

This step is to specify the decision maker's acceptable limits on decision errors, which are used to establish appropriate performance goals for limiting uncertainty in environmental data. These acceptable limits on decision errors allow decision makers to generate effective sampling designs while limiting uncertainties in the collected data.

There are two types of decision errors applicable to estimating the true value of a population: 1) sampling design error, which occurs when the sampling design is unable to capture the complete state of natural variability over space and time; and 2) measurement error, which refers to a combination of random and systematic errors. The combination of sampling design error and measurement error is termed as the total study error. Since it is impossible to eliminate error in measurement data, two types of decision errors can occur: Type I and Type II. A Type I or false positive error occurs when a null hypothesis is true, but is mistakenly rejected. A Type II or false negative error occurs when a null hypothesis is false, but is not rejected.

In this investigation, the false rejection error is concluding that soils do not contain contaminants of concern with concentrations exceeding the action levels when there are actually contaminants of concern with concentrations that exceeded the action levels. The false acceptance error is concluding that the soils do contain contaminants of concern with concentrations that exceeded the action levels when there are actually no contaminants of concern with concentrations that exceeded the action levels.

The consequences of the false acceptance decision will be unnecessary expenditure of resources such as funding, personnel, and time. The consequence of the false rejection error is that contaminants of concern in soils will not be remediated and will pose unacceptable risk to the environment or human health. Because of the possible severity of the false rejection error consequence, the false acceptance error is more tolerable than the false rejection error. The false acceptance decision error will occur when the

analytical results are biased high and the false rejection decision error will occur when the analytical results are biased low.

7.0 Optimize the Design for Obtaining Data

This step involves identifying the most resource effective sampling and analysis design for generating data that are expected to satisfy project DQOs.

The consequence of the decision error will need to be balanced against the cost of limiting the possibility of these errors. These errors will be managed by the use of precise and accurate analytical methods, sampling techniques (e.g., compositing for waste characterization), and duplicate sample analysis. To minimize unacceptable errors, laboratory analyses with a high degree of confidence and extensive quality assurance and quality control (QA/QC) and documentation procedures will be utilized.

APPENDIX 4

MEASUREMENT PERFORMANCE CRITERIA

Project Target Analyte Reporting Limit, Blank Contamination, and Lab & Field Duplicate RPD Criteria

eQapp Name: Cornell_OU1_Spectrum (090612)

Description: Cornell_OU1_Spectrum (revised 090612)

Target Analyte Name	Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination Rule	LabDup RPD	FieldDup RPD
Method: 6010B Matrix:	SO						
ALUMINUM	7429-90-5	10		mg/Kg	5.00	20.00	35.00
ANTIMONY	7440-36-0	1		mg/Kg	5.00	20.00	35.00
ARSENIC	7440-38-2	1		mg/Kg	5.00	20.00	35.00
BARIUM	7440-39-3	10		mg/Kg	5.00	20.00	35.00
BERYLLIUM	7440-41-7	0.25		mg/Kg	5.00	20.00	35.00
CADMIUM	7440-43-9	0.25		mg/Kg	5.00	20.00	35.00
CHROMIUM	7440-47-3	1		mg/Kg	5.00	20.00	35.00
COBALT	7440-48-4	2.5		mg/Kg	5.00	20,00	35.00
COPPER	7440-50-8	1.5		mg/Kg	5.00	20.00	35.00
LEAD	7439-92-1	0.5		mg/Kg	5.00	20.00	35.00
MANGANESE	7439-96-5	2.5		mg/Kg	5.00	20.00	35.00
NICKEL	7440-02-0	2.5		mg/Kg	5.00	20.00	35.00
SELENIUM	7782-49-2	1.5		mg/Kg	5.00	20.00	35.00
SILVER	7440-22-4	1.5		mg/Kg	5.00	20.00	35.00
THALLIUM	7440-28-0	1		mg/Kg	5.00	20.00	35.00
VANADIUM	7440-62-2	2.5		mg/Kg	5.00	20.00	35.00
ZINC	7440-66-6	2.5		mg/Kg	5.00	20.00	35.00
Method: 6010B-TCLP Matrix:	SO						
ARSENIC	7440-38-2	20		ug/L	5.00	20.00	35.00
BARIUM	7440-39-3	200		ug/L	5.00	20.00	35.00
CADMIUM	7440-43-9	5		ug/L	5.00	20.00	35.00
CHROMIUM	7440-47-3	20		ug/L	5.00	20.00	35.00
LEAD	7439-92-1	10	University of the State of State of the State of	ug/L	5.00	20.00	35.00
SELENIUM	7782-49-2	30		ug/L	5.00	20.00	35.00
SILVER	7440-22-4	30		ug/L	5.00	20.00	35.00
Method: 7470A-TCLP Matrix:	SO						
MERCURY	7439-97-6	0.20		ug/L	5.00	20.00	35.00

Target Analyte Name		Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination Rule	LabDup RPD	FieldDup RPD
Method: 7471A	Matrix: SO							
MERCURY		7439-97-6	0.033		mg/Kg	5.00	20.00	35.00
Method: 8081A	Matrix: SO							
4,4'-DDD		72-54-8	3.3		ug/Kg	5.00		35.00
4,4'-DDE .		72-55-9	3.3		ug/Kg	5.00		35.00
4,4'-DDT		50-29-3	3.3		ug/Kg	5.00		35.00
ALDRIN		309-00-2	1.7		ug/Kg	5.00		35.00
ALPHA-BHC		319-84-6	1.7		ug/Kg	5.00		35.00
ALPHA-CHLORDANE		5103-71-9	1.7		ug/Kg	5.00		35.00
BETA-BHC		319-85-7	1.7		ug/Kg	5.00		35.00
DIELDRIN		60-57-1	3.3		ug/Kg	5.00		35.00
ENDOSULFAN I		959-98-8	1.7		ug/Kg	5.00		35,00
ENDOSULFAN II		33213-65-9	3.3		ug/Kg	5.00		35.00
ENDOSULFAN SULFATE		1031-07-8	3.3		ug/Kg	5.00		35.00
ENDRIN		72-20-8	3.3		ug/Kg	5.00		35.00
GAMMA-BHC		58-89-9	1.7		ug/Kg	5.00		35.00
GAMMA-CHLORDANE		5103-74-2	1.7		ug/Kg	5.00		35.00
HEPTACHLOR		76-44-8	1.7		ug/Kg	5.00		35.00
HEPTACHLOR EPOXIDE		1024-57-3	1.7		ug/Kg	5.00		35.00
METHOXYCHLOR		72-43-5	17		ug/Kg	5.00		35.00
TOXAPHENE		8001-35-2	170		ug/Kg	5.00		35.00
Method: 8081A-TCLP	Matrix: SO							
CHLORDANE (TECHNICAL)		57-74-9	2.5		ug/L	5.00	25.00	35.00
ENDRIN		72-20-8	0.1		ug/L	5.00	30.00	35.00
GAMMA-BHC		58-89-9	0.05		ug/L	5.00	30.00	35.00
HEPTACHLOR		76-44-8	0.05		ug/L	5.00	30.00	35.00
HEPTACHLOR EPOXIDE		1024-57-3	0.05		ug/L	5.00	30.00	35.00
METHOXYCHLOR		72-43-5	0.5		ug/L	5.00	30.00	35.00
TOXAPHENE	r kener ere Anders fil stot die Elektronier in die 12 Metropiele film film film der jag bei	8001-35-2	5		ug/L	5.00	25.00	35.00
Method: 8082	Matrix: SO							
AROCLOR 1016		12674-11-2	33		ug/Kg	5.00		35.00
AROCLOR 1221		11104-28-2	33		ug/Kg	5.00		35.00
AROCLOR 1232		11141-16-5	33		ug/Kg	5.00		35.00

Target Analyte Name	Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination Rule	LabDup RPD	FieldDup RPD
						–	
Method: 8082 Matrix: SO							
AROCLOR 1242	53469-21-9	33		ug/Kg	5.00		35.00
AROCLOR 1248	12672-29-6	33		ug/Kg	5.00		35.00
AROCLOR 1254	11097-69-1	33		ug/Kg	5.00		35.00
AROCLOR 1260	11096-82-5	33		ug/Kg	5.00		35.00
Method: 8151A-TCLP Matrix: SO							
2,4,5-TP	93-72-1	0.33		ug/L	5.00	30.00	35.00
2,4-D	94-75-7	3.3		ug/L	5.00	30.00	35.00
Method: 8260B Matrix: SO							
1,1,1-TRICHLOROETHANE	71-55-6	5		ug/Kg	5.00		35.00
1,1,2,2-TETRACHLOROETHANE	79-34-5	5		ug/Kg	5.00		35.00
1,1,2-TRICHLOROETHANE	79-00-5	5		ug/Kg	5.00		35.00 35.00
1,1-DICHLOROETHANE	75-34-3	5		ug/Kg	5.00		35.00
1,1-DICHLOROETHENE	75-35-4	5		ug/Kg	5.00		35.00 35.00
1,2,4-TRICHLOROBENZENE	120-82-1	5		ug/Kg	5.00		35.00
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	5		ug/Kg	5.00		35.00 35.00
1,2-DIBROMOETHANE	106-93-4	5		ug/Kg	5.00		35.00
1,2-DICHLOROBENZENE	95-50-1	5		ug/Kg	5.00		35.00
1,2-DICHLOROETHANE	107-06-2	5		ug/Kg	5.00		35.00
1,2-DICHLOROPROPANE	78-87-5	5		ug/Kg	5.00		35.00
1,3-DICHLOROBENZENE	541-73-1	5		ug/Kg	5.00		35.00
1,4-DICHLOROBENZENE	106-46-7	5		ug/Kg	5.00		35.00
2-BUTANONE	78-93-3	5		ug/Kg	5.00		35.00
ACETONE	67-64-1	5		ug/Kg	10.00		35.00
ACROLEIN	107-02-8	25		ug/Kg	5.00		35.00
ACRYLONITRILE	107-13-1	5		ug/Kg	5.00		35.00
BENZENE	71-43-2	5		ug/Kg	5.00		35.00
BROMODICHLOROMETHANE	75-27-4	5		ug/Kg	5.00		35.00
BROMOFORM	75-25-2	5		ug/Kg	5.00		35.00
BROMOMETHANE	74-83-9	5		ug/Kg	5.00		35.00
CARBON DISULFIDE	75-15-0	5		ug/Kg	5.00		35.00
CARBON TETRACHLORIDE	56-23-5	5		ug/Kg	5.00		35.00
CHLOROBENZENE	108-90-7	5		ug/Kg	5.00		35.00

Target Analyte Name	Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination La Rule	bDup RPD	FieldDup RPD
N. H. J. 2000							
Method: 8260B Matrix: SO CHLOROETHANE	75-00-3	E			5.00		
CHLOROFORM	67-66-3	5		ug/Kg	5.00		35.00
CHLOROMETHANE	74-87-3	5		ug/Kg	5.00		35.00
CIS-1,2-DICHLOROETHENE	74-87-3 156-59 - 2	5		ug/Kg	5.00		35.00
CIS-1,3-DICHLOROPROPENE		5		ug/Kg	5.00		35.00
DIBROMOCHLOROMETHANE	10061-01-5	5		ug/Kg	5.00		35.00
DICHLORODIFLUOROMETHANE	124-48-1 75-71-8	5		ug/Kg	5.00		35.00
ETHYLBENZENE	CSS Colores and transfer and company of the colores	5		ug/Kg	5.00		35.00
METHYL ACETATE	100-41-4	5		ug/Kg	5.00		35.00
	79-20-9	5		ug/Kg	5.00		35.00
METHYLENE CHLORIDE	75-09-2	5		ug/Kg	10.00		35.00
methyl-t-butyl ether	1634-04-4	5		ug/Kg			35.00
STYRENE	100-42-5	5		ug/Kg	5.00		35.00
TERT-BUTYL ALCOHOL	75-65-0	10		ug/Kg	5.00		35.00
TETRACHLOROETHENE	127-18-4	5		ug/Kg	5.00		35.00
TOLUENE	108-88-3	5		ug/Kg	5.00		35.00
TRANS-1,2-DICHLOROETHENE	156-60-5	5		ug/Kg	5.00		35.00
TRANS-1,3-DICHLOROPROPENE	10061-02-6	5		ug/Kg	5.00		35.00
TRICHLOROETHENE	79-01-6	5		ug/Kg	5.00		35.00
TRICHLOROFLUOROMETHANE	75-69-4	5		ug/Kg	5.00		35.00
VINYL CHLORIDE	75-01-4	5		ug/Kg	5.00		35.00
Xylene (Total)	1330-20-7	5		ug/Kg	5.00		35.00
Method: 8260B-TCLP Matrix: SO							
1,1-DICHLOROETHENE	75-35-4	5		ug/L	5.00 4	0.00	40.00
1,2-DICHLOROETHANE	107-06-2	5		ug/L	5.00 4	0.00	40.00
2-BUTANONE	78-93-3	5		ug/L		-0.00	40.00
BENZENE	71-43-2	5		ug/L	5.00 4	0.00	40.00
CARBON TETRACHLORIDE	56-23-5	5		ug/L		0.00	40.00
CHLOROBENZENE	108-90-7	5		ug/L		0.00	40.00
CHLOROFORM	67-66-3	5		ug/L		0.00	40.00
TETRACHLOROETHENE	127-18-4	5		ug/L		0.00	40.00
TRICHLOROETHENE	79-01-6	5		ug/L		0.00	40.00
VINYL CHLORIDE	75-01-4	5		ug/L		0.00	40.00
	7.5-01-4	J		ug/L	5.00 4	0.00	40.0

Target Analyte Name	Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination Rule	LabDup RPD	FieldDup RPD
Method: 8270C Matrix: SO							
1,1'-Biphenyl	92-52-4	330		ug/Kg	5.00		35.00
2,4,5-TRICHLOROPHENOL	95-95-4	670		ug/Kg	5.00		35.00
2,4,6-TRICHLOROPHENOL	88-06 - 2	330		ug/Kg	5.00		35.00
2,4-DICHLOROPHENOL	120-83-2	330		ug/Kg	5.00		35.00
2,4-DIMETHYLPHENOL	105-67-9	330		ug/Kg	5.00		35.00
2,4-DINITROPHENOL	51-28-5	670		ug/Kg	5.00		35.00
2,4-DINITROTOLUENE	121-14-2	330		ug/Kg	5.00		35.00
2,6-DINITROTOLUENE	606-20-2	330		ug/Kg	5.00		35.00
2-CHLOROPHENOL	95-57-8	330		ug/Kg	5.00		35.00
2-METHYL-4,6-DINITROPHENOL	534-52-1	670		ug/Kg	5.00		35.00
2-METHYLNAPHTHALENE	91-57-6	330		ug/Kg	5.00		35.00
2-METHYLPHENOL	95-48-7	330		ug/Kg	5.00		35.00
2-NITROANILINE	88-74-4	670		ug/Kg	5.00		35.00
3,3'-DICHLOROBENZIDINE	91-94-1	330		ug/Kg	5.00		35.00
4-METHYLPHENOL	106-44-5	330		ug/Kg	5.00		35.00
ACENAPHTHENE	83-32-9	330		ug/Kg	5.00		35.00
ACENAPHTHYLENE	208-96-8	330		ug/Kg	5.00		35.00
ACETOPHENONE	98-86-2	330		ug/Kg	5.00		35.00
ANTHRACENE	120-12-7	330		ug/Kg	5.00		35.00
ATRAZINE	1912-24-9	330		ug/Kg	5.00		35.00
Azobenzene	103-33-3	330		ug/Kg	5.00		35.00
BENZALDEHYDE	100-52-7	330		ug/Kg	5.00		35.00
BENZIDINE	92-87-5	330		ug/Kg	5.00		35.00
BENZO(A)ANTHRACENE	56-55-3	330		ug/Kg	5.00		35.00
BENZO(A)PYRENE	50-32-8	330		ug/Kg	5.00		35.00
BENZO(B)FLUORANTHENE	205-99-2	330		ug/Kg	5.00		35.00
BENZO(G,H,I)PERYLENE	191-24-2	330		ug/Kg	5.00		35.00
BENZO(K)FLUORANTHENE	207-08-9	330		ug/Kg	5.00		35.00
BIS(2-CHLOROETHYL) ETHER	111-44-4	330		ug/Kg	5.00		35.00
BIS(2-CHLOROISOPROPYL)ETHER	108-60-1	330		ug/Kg	5.00		35.00
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	330		ug/Kg	5.00		35.00
BUTYLBENZYL PHTHALATE	85-68-7	330		ug/Kg	5.00		35.00
CAPROLACTAM	105-60-2	330		ug/Kg	5.00		35.00

Target Analyte Name	Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination Lab Rule RI	Dup PD	FieldDup RPD
Method: 8270C Matrix: SO CARBAZOLE	00.74.0						
	86-74-8	330		ug/Kg	5.00		35.00
CHRYSENE	218-01-9	330		ug/Kg	5.00		35.00
DIBENZ(A,H)ANTHRACENE	53-70-3	330		ug/Kg	5.00		35.00
DIETHYL PHTHALATE	84-66-2	330		ug/Kg	5.00		35.00
DI-N-BUTYL PHTHALATE	84-74-2	330		ug/Kg	5.00		35.00
DI-N-OCTYL PHTHALATE	117-84-0	330		ug/Kg	5.00		35.00
FLUORANTHENE	206-44-0	330		ug/Kg	5.00		35.00
FLUORENE	86-73-7	330		ug/Kg	5.00		35.00
HEXACHLOROBENZENE	118-74-1	330		ug/Kg	5.00		35.00
HEXACHLOROBUTADIENE	87-68-3	330		ug/Kg	5.00		35.00
HEXACHLOROCYCLOPENTADIENE	77-47-4	330		ug/Kg	5.00		35.00
HEXACHLOROETHANE	67-72-1	330		ug/Kg	5.00		35.00
INDENO(1,2,3-CD)PYRENE	193-39-5	330		ug/Kg	5.00		35.00
ISOPHORONE	78-59-1	330		ug/Kg	5.00		35.00
NAPHTHALENE	91-20-3	330		ug/Kg	5.00		35.00
NITROBENZENE	98-95-3	330		ug/Kg	5.00		35.00
N-NITROSODIMETHYLAMINE	62-75-9	330		ug/Kg	5.00		35.00
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	330		ug/Kg	5.00		35.00
N-NITROSODIPHENYLAMINE	86-30-6	330		ug/Kg	5.00		35.00
PENTACHLOROPHENOL	87-86-5	670		ug/Kg	5.00		35.00
PHENANTHRENE	85-01-8	330		ug/Kg	5.00		35.00
PHENOL	108-95-2	330		ug/Kg	5.00		35.00
PYRENE	129-00-0	330		ug/Kg	5.00		35.00
Method: 8270C-TCLP Matrix: SO							
1,4-DICHLOROBENZENE	106-46-7	33		ug/L	5.00		35.00
2,4,5-TRICHLOROPHENOL	95-95-4	66		ug/L	5.00		35.00
2,4,6-TRICHLOROPHENOL	88-06-2	33		ug/L	5.00		35.00
2,4-DINITROTOLUENE	121-14-2	33		ug/L	5.00		35.00
2-METHYLPHENOL	95-48-7	33		ug/L	5.00		35.00
3&4-Methylphenol	106-44-5	33		ug/L	5.00		35.00
HEXACHLOROBENZENE	118-74-1	33		ug/L	5.00		35.00
HEXACHLOROBUTADIENE	87-68-3	33		ug/L	5.00		35.00

Target Analyte Name		Analyte Label (CAS)	Quantitation Limit	Detection Limit	Units	Blank Contamination Rule	LabDup RPD	FieldDup RPD
Method: 8270C-TCLP	Matrix: SO							
HEXACHLOROETHANE	maura: 00	67-72-1	33		ug/L	5.00		35.00
NITROBENZENE		98-95-3	33		ug/L	5.00		35.00
PENTACHLOROPHENOL		87-86-5	66		ug/L	5.00		35.00
PYRIDINE		110-86-1	33		ug/L	5.00		35.00
Method: 9012	Matrix: SO							
CYANIDE	es esta men men men men esta sun montratur error de presidifica fertilen mon	57-12-5	1.0		mg/Kg	5.00	20.00	35.00
Method: 9045	Matrix: SO							
pH		ADR-04-001	1		pН	5.00	20.00	35.00
Method: DOE 4.5.2.3	Matrix: SO							
Ac-228		14331-83-0	0.1		pCi/g	5.00	3.92	50.00
Bi-212		14913-49-6	0.1		pCi/g	5.00	3.92	50.00
Bi-214		14733-03-0	0.1		pCi/g	5.00	3.92	50.00
K-40		13966-00-2	0.1		pCi/g	5.00	3.92	50.00
Pa-234m		15100-28-4	0.1		pCi/g	5.00	3.92	50.00
Pb-212		15092-94-1	0.1		pCi/g	5.00	3.92	50.00
Pb-214		15067-28-4	0.1	opina i incres enterprorque, projet	pCi/g	5.00	3.92	50.00
Ra-226		13982-63-3	0.1		pCi/g	5.00	3.92	50.00
Ra-228		15262-20-1	0.1		pCi/g	5.00	3.92	50.00
Th-234		15065-10-8	0.1		pCi/g	5.00	3.92	50.00
Thorium-232	en in en en en en formen en in page en en perfect fan en pelop fût gebrûn fût fij de ferst je en fût.	7440-29-1	0.1		pCi/g	5.00	3.92	50.00
TI-208		14913-50-9	0.1		pCi/g	5.00	3.92	50.00
U-235		15117-96-1	0.1		pCi/g	5.00	3.92	50.00
Method: EPA 1010	Matrix: SO							
IGNITABILITY		10-36-6	200		deg F	5.00	25.00	25.00
Method: SM 4500-H+ B	Matrix: AQ							
pH	and the second s	ADR-04-001	1		рН	5.00	20.00	50.00
Method: SW846_7.3.1	Matrix: SO							
Reactive Cyanide		57-12-5	1		mg/kg	5.00	20.00	50.00
Method: SW846_7.3.2	Matrix: SO							
Reactive Sulfide		18496-25-8	1		mg/kg	5.00	20.00	50.00

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Project Accuracy and Precision Report

eQapp Name: Cornell_OU1_Spectrum (090612)

Description: Cornell_OU1_Spectrum (revised 090612)

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 6010B Matrix:	SO					
QC Type: LCS				rtae i serre kundrus som i geta siget i ertilet i egte i kundt på gje gje gjerfartet i stil felik killet.		
ALUMINUM	7429-90-5	10.00	80.00	120.00		
ANTIMONY	7440-36-0	10.00	80.00	120.00		
ARSENIC	7440-38-2	10.00	80.00	120.00		
BARIUM	7440-39-3	10.00	80.00	120.00		
BERYLLIUM	7440-41-7	10.00	80.00	120.00		ovistos (special establicas) și de app
CADMIUM	7440-43-9	10.00	80.00	120.00		
CHROMIUM	7440-47-3	10.00	80.00	120.00		
COBALT	7440-48-4	10.00	80.00	120.00		
COPPER	7440-50-8	10.00	80.00	120.00		
LEAD	7439-92-1	10.00	80.00	120.00		
MANGANESE	7439-96-5	10.00	80.00	120.00		
NICKEL	7440-02-0	10.00	80.00	120.00		
SELENIUM	7782-49-2	10.00	80.00	120.00		
SILVER	7440-22-4	10.00	7 5.00	120.00		
THALLIUM	7440-28-0	10.00	80.00	120.00		
VANADIUM	7440-62-2	10.00	80.00	120.00		
ZINC	7440-66-6	10.00	80.00	120.00		
QC Type: MS						
ALUMINUM	7429-90-5	10.00	75.00	125.00		
ANTIMONY	7440-36-0	10.00	75.00	125.00		
ARSENIC	7440-38-2	10.00	75.00	125.00		
BARIUM	7440-39-3	10.00	75.00	125.00		
BERYLLIUM	7440-41-7	10.00	75.00	125.00		
CADMIUM	7440-43-9	10.00	75.00	125.00		
CHROMIUM	7440-47-3	10.00	75.00	125.00		
COBALT	7440-48-4	10.00	75.00	125.00		
/6/2012 2:13:28 PM		ADD wareless	1.00.405			

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Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 6010B	Matrix:	SO					
QC Type: MS		an a sainte ann a na ceannaisean an Amhail Mhaille an An An An An An An An An An An An An An					
COPPER		7440-50-8	10.00	75.00	125.00		
LEAD		7439-92-1	10.00	75.00	125.00		
MANGANESE		7439-96-5	10.00	75.00	125.00		
NICKEL		7440-02-0	10.00	75.00	125.00		
SELENIUM		7782-49-2	10.00	75.00	125.00		
SILVER		7440-22-4	10.00	75.00	125.00		
THALLIUM		7440-28-0	10.00	75.00	125.00		
VANADIUM		7440-62-2	10.00	75.00	125.00		
ZINC		7440-66-6	10.00	75.00	125.00		
Method: 6010B-TCLP	Matrix:	SO					
QC Type: LCS	en en en en en en en en en en en en en e	-Connections in report of the size of the		kant kan dan dan matan dan dalah mengan kan dan dan dan dan dan dan dan dan dan d			
ARSENIC		7440-38-2	10.00	80.00	120.00		
BARIUM		7440-39-3	10.00	80.00	120.00		
CADMIUM		7440-43-9	10.00	80.00	120.00	ernekasen ar omnapå veta keneska flyration fråt, franka filler ken fill at 1990.	
CHROMIUM		7440-47-3	10.00	80.00	120.00		
LEAD		7439-92-1	10.00	80.00	120.00	en en en en en en en en en en en en en e	
SELENIUM		7782-49-2	10.00	80.00	120.00		
SILVER		7440-22-4	10.00	80.00	120.00		
QC Type: MS							
ARSENIC		7440-38-2	10.00	80.00	120.00		
BARIUM	and the second s	7440-39-3	10.00	80.00	120.00		
CADMIUM		7440-43-9	10.00	80.00	120.00		
CHROMIUM		7440-47-3	10.00	80.00	120.00		
LEAD		7439-92-1	10.00	80.00	120.00		
SELENIUM		7782-49-2	10.00	80.00	120.00		
SILVER		7440-22-4	10.00	80.00	120.00		

Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 7470A-TCLP	Matrix:	SO					
QC Type: LCS			ercentus anno escentus escent en terre com commente for descentista de confession de chievari e	and New York Transition for School of Control of Control of the Control of Control of Control of Control of Co	e en en primere en retroume dans et inscending professionale en avail en feste (1920).		
MERCURY		7439-97-6	10.00	80.00	120.00		
QC Type: MS							
MERCURY		7439-97-6	10.00	80.00	120.00		
Method: 7471A	Matrix:	SO					
QC Type: LCS	n e i ninkaj a kiestona sekstanta rinkelen kiespola estagoja granjistije jej po		9 (4 miles 19 miles 14 miles 19 miles 1				
MERCURY		7439-97-6	10.00	80.00	120.00		
QC Type: MS							
MERCURY		7439-97-6	10.00	80.00	120.00		
Method: 8081A	Matrix:	SO					
QC Type: LCS		ere a la forece a conse de presentações de para a deba de la constituição de partidos de partidos de partidos					
4,4'-DDD		72-54-8	10.00	30.00	135.00		30.00
4,4'-DDE		72-55-9	10.00	70.00	125.00		30.00
4,4'-DDT		50-29-3	10.00	45.00	140.00		30.00
ALDRIN		309-00-2	10.00	45.00	140.00		30.00
ALPHA-BHC		319-84-6	10.00	60.00	125.00		30.00
ALPHA-CHLORDANE		5103-71-9	10.00	65.00	120.00		30.00
BETA-BHC		319-85-7	10.00	60.00	125.00		30.00
DIELDRIN		60-57-1	10.00	65.00	125.00		30.00
ENDOSULFAN I		959-98-8	10.00	15.00	135.00		30.00
ENDOSULFAN II		33213-65-9	10.00	35.00	140.00		30.00
ENDOSULFAN SULFATE		1031-07-8	10.00	60.00	135.00		30.00
ENDRIN		72-20-8	10.00	60.00	135.00		30.00
GAMMA-BHC		58-89-9	10.00	60.00	125.00		30.00
		5103-74-2	10.00	65.00	125.00		30.00
GAMMA-CHLORDANE		76 44 0	10.00	50.00	140.00		30.00
GAMMA-CHLORDANE HEPTACHLOR		76-44-8	10.00				
		1024-57-3	10.00	65.00	130.00		30.00

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8081A Matr	rix: SO					
QC Type: MS						
4,4'-DDD	72-54-8	10.00	30.00	135.00		30.00
4,4'-DDE	72-55-9	10.00	70.00	125.00		30.00
4,4'-DDT	50-29-3	10.00	45.00	140.00		30.00
ALDRIN	309-00-2	10.00	45.00	140.00		30.00
ALPHA-BHC	319-84-6	10.00	60.00	125.00		30.00
ALPHA-CHLORDANE	5103-71-9	10.00	65.00	120.00		30.00
BETA-BHC	319-85-7	10.00	60.00	125.00		30.00
DIELDRIN	60-57-1	10.00	65.00	125.00		30.00
ENDOSULFAN I	959-98-8	10.00	15.00	135.00		30.00
ENDOSULFAN II	33213-65-9	10.00	35.00	140.00		30.00
ENDOSULFAN SULFATE	1031-07-8	10.00	60.00	135.00		30.00
ENDRIN	72-20-8	10.00	60.00	135.00		30.00
GAMMA-BHC	58-89 - 9	10.00	60.00	125.00		30.00
GAMMA-CHLORDANE	5103-74-2	10.00	65.00	120.00		30.00
HEPTACHLOR	76-44-8	10.00	50.00	140.00		30.00
HEPTACHLOR EPOXIDE	1024-57-3	10.00	65.00	130.00		30.00
METHOXYCHLOR	72-43-5	10.00	55.00	145.00		30.00
QC Type: SURR						
DECACHLOROBIPHENYL	2051-24-3	10.00	55.00	130.00		
Tetrachloro-meta-xylene	877-09-8	10.00	14.00	113.00		
Method: 8081A-TCLP Matr	ix: SO					
QC Type: LCS						
ENDRIN	72-20-8	10.00	55.00	135.00		30.00
GAMMA-BHC	58-89-9	10.00	25.00	135.00		30.00
HEPTACHLOR	76-44-8	10.00	40.00	130.00		30.00
HEPTACHLOR EPOXIDE	1024-57-3	10.00	60.00	130.00		30.00
METHOXYCHLOR	72-43-5	10.00	55.00	150.00		30.00

Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8081A-TCLP	Matrix:	SO					
QC Type: MS			er tre tekn og ek er ette 3-1 ekter er sikkettet bet 8 masketektet for er ette 1800 e				
ENDRIN		72-20-8	10.00	55.00	135.00		30.00
GAMMA-BHC		58-89-9	10.00	25.00	135.00		30.00
HEPTACHLOR		76-44-8	10.00	40.00	130.00		30.00
HEPTACHLOR EPOXID	E	1024-57-3	10.00	60.00	130.00		30.00
METHOXYCHLOR		72-43-5	10.00	55.00	150.00		30.00
QC Type: SURR							
DECACHLOROBIPHEN		2051-24-3	10.00	40.00	135.00		
TETRACHLORO-M-XYL	ENE	877-09-8	10.00	32.00	89.00		
Method: 8082	Matrix:	SO					
QC Type: LCS							
AROCLOR 1016		12674-11-2	10.00	40.00	140.00		30.00
AROCLOR 1260		11096-82-5	10.00	60.00	130.00		30.00
QC Type: MS					7,700,000		
AROCLOR 1016		12674-11-2	10.00	40.00	140.00		30.00
AROCLOR 1260		11096-82-5	10.00	60.00	130.00		30.00
QC Type: SURR							in de la serie como del degla de la grafa de la como de la como de la como de la como de la como de la como de
DECACHLOROBIPHEN'	YL	2051-24-3	10.00	60.00	125.00		
TETRACHLORO-M-XYL	ENE	877-09-8	10.00	27.00	120.00		
Method: 8151A-TCLP	Matrix:	SO					
QC Type: LCS				r dela vir in metatroni in di artiglia del matario populari estibendo di a disempeda			
2,4,5-TP		93-72-1	10.00	36.00	136.00		30.00
2,4-D		94-75-7	10.00	24.00	133.00		30.00
QC Type: MS						The second secon	
2,4,5-TP		93-72-1	10.00	36.00	136.00		30.00
/6/2012 2:13:28 PM			ADR version	1.6.0.185			Page 5 of 1

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8151A-TCLP	Matrix: SO					
QC Type: MS						
2,4-D	94-75-7	10.00	24.00	133.00		30.00
QC Type: SURR						
2,4-DCPAA	19719-28-9	10.00	10.00	105.00		
Method: 8260B	Matrix: SO					
QC Type: LCS			en en en en en en en en en en en en en e	t i termina ya ipin ili dalamba kumin silahari ya Prokamba kusha kusha kusha kusha silahari kusha kusha silaha		
1,1,1-TRICHLOROETHANE	71-55-6	10.00	70.00	135.00		40.00
1,1,2,2-TETRACHLOROETHANE	79-34-5	10.00	55.00	130.00		40.00
1,1,2-TRICHLOROETHANE	79-00-5	10.00	60.00	125.00		40.00
1,1-DICHLOROETHANE	75-34-3	10.00	75.00	125.00		40.00
1,1-DICHLOROETHENE	75-35-4	10.00	65.00	135.00		40.00
1,2,4-TRICHLOROBENZENE	120-82-1	10.00	65.00	130.00		40.00
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	10.00	40.00	135.00		40.00
1,2-DIBROMOETHANE	106-93-4	10.00	70.00	125.00		40.00
1,2-DICHLOROBENZENE	95-50 - 1	10.00	75.00	120.00		40.00
1,2-DICHLOROETHANE	107-06-2	10.00	70.00	135.00		40.00
1,2-DICHLOROPROPANE	78-87-5	10.00	70.00	120.00		40.00
1,3-DICHLOROBENZENE	541-73-1	10.00	70.00	125.00		40.00
1,4-DICHLOROBENZENE	106-46-7	10.00	70.00	125.00		40.00
2-BUTANONE	78-93-3	10.00	30.00	160.00		40.00
ACETONE	67-64-1	10.00	20.00	160.00		40.00
ACROLEIN	107-02-8	10.00	70.00	130.00		40.00
ACRYLONITRILE	107-13-1	10.00	70.00	130.00		40.00
BENZENE	71-43-2	10.00	75.00	125.00		40.00
BROMODICHLOROMETHANE	75-27-4	10.00	70.00	130.00		40.00
BROMOFORM	75-25-2	10.00	55.00	135.00		40.00
BROMOMETHANE	74-83-9	10.00	30.00	160.00		40.00
CARBON DISULFIDE	75-15-0	10.00	45.00	160.00		40.00
CARBON TETRACHLORIDE	56-23-5	10.00	65.00	135.00		40.00
CHLOROBENZENE	108-90-7	10.00	75.00	125.00		40.00
CHLOROETHANE	75-00-3	10.00	40.00	155.00		40.00

Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8260B	Matrix:	SO					
QC Type: LCS		rhay ween it. They are to cart is empositive deciries that groups about a section	ર મહારાજન જ લાક કરવા છે. જ રામાં જ લાક મહારાજન કરેલા કરાક તે કરાક હતા હતા છે. જે હતા કરો છે. સાથે કરો કરો છે.				
CHLOROFORM		67-66-3	10.00	70.00	125.00		40.00
CHLOROMETHANE		74-87-3	10.00	50.00	130.00		40.00
CIS-1,2-DICHLOROETHENE		156-59-2	10.00	65.00	125.00		40.00
CIS-1,3-DICHLOROPROPENE		10061-01-5	10.00	70.00	125.00		40.00
DIBROMOCHLOROMETHANE		124-48-1	10.00	65.00	130.00		40.00
DICHLORODIFLUOROMETHANE		75-71-8	10.00	35.00	135.00		40.00
ETHYLBENZENE		100-41-4	10.00	75.00	125.00		40.00
METHYL ACETATE		79-20-9	10.00	70.00	130.00		40.00
METHYLENE CHLORIDE		75-09-2	10.00	55.00	140.00		40.00
methyl-t-butyl ether		1634-04-4	10.00	75.00	126.00		40.00
STYRENE		100-42-5	10.00	75.00	125.00		40.00
TERT-BUTYL ALCOHOL		75-65-0	10.00	50.00	130.00		40.00
TETRACHLOROETHENE		127-18-4	10.00	65.00	140.00		40.00
TOLUENE		108-88-3	10.00	70.00	125.00		40.00
TRANS-1,2-DICHLOROETHENE		156-60-5	10.00	65.00	135.00		40.00
TRANS-1,3-DICHLOROPROPENE		10061-02-6	10.00	65.00	125.00		40.00
TRICHLOROETHENE		79-01-6	10.00	75.00	125.00	7.04	40.00
TRICHLOROFLUOROMETHANE		75-69-4	10.00	25.00	185.00		40.00
VINYL CHLORIDE		75-01-4	10.00	60.00	125.00		40.00
Xylene (Total)		1330-20-7	10.00	83.00	125.00		40.00
QC Type: MS							
1,1,1-TRICHLOROETHANE		71-55-6	10.00	70.00	135.00		40.00
1,1,2,2-TETRACHLOROETHANE		79-34-5	10.00	55.00	130.00		40.00
1,1,2- T RICHLOROETHANE		79-00-5	10.00	60.00	125.00		40.00
1,1-DICHLOROETHANE		75-34-3	10.00	75.00	125,00		40.00
1,1-DICHLOROETHENE		75-35-4	10.00	65.00	135.00		40.00
1,2,4-TRICHLOROBENZENE		120-82-1	10.00	65.00	130,00		40.00
1,2-DIBROMO-3-CHLOROPROPANE		96-12-8	10.00	40.00	135.00		40.00
1,2-DIBROMOETHANE		106-93-4	10.00	70.00	125.00		40.00
1,2-DICHLOROBENZENE		95-50-1	10.00	75.00	120.00		40.00
1,2-DICHLOROETHANE		107-06-2	10.00	70.00	135.00		40.00

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8260B	Matrix: SO					
QC Type: MS		તા માના લાગ લાગ માના કરાવા છે. તે તે જાણ કરવા છે. તે કરવા કરવા કરવા છે. તે માના કરવા છે. તે માના સ્થાપની કરી હ			and the second second second second second second second second second second second second second second second	
1,2-DICHLOROPROPANE	78-87-5	10.00	70.00	120.00		40.00
1,3-DICHLOROBENZENE	541-73-1	10.00	70.00	125.00		40.00
1,4-DICHLOROBENZENE	106-46-7	10.00	70.00	125.00		40.00
2-BUTANONE	78-93-3	10.00	30.00	160.00		40.00
ACETONE	67-64-1	10.00	20.00	160.00		40.00
ACROLEIN	107-02-8	10.00	70.00	130.00		40.00
ACRYLONITRILE	107-13-1	10.00	70.00	130.00		40.00
BENZENE	71-43-2	10.00	75.00	125.00		40.00
BROMODICHLOROMETHANE	75-27-4	10.00	70.00	130.00		40.00
BROMOFORM	75-25-2	10.00	55.00	135.00		40.00
BROMOMETHANE	74-83-9	10.00	30.00	160.00		40.00
CARBON DISULFIDE	75-15-0	10.00	45.00	160.00		40.00
CARBON TETRACHLORIDE	56-23-5	10.00	65.00	135.00		40.00
CHLOROBENZENE	108-90-7	10.00	75.00	125.00		40.00
CHLOROETHANE	75-00-3	10.00	40.00	155.00		40.00
CHLOROFORM	67-66-3	10.00	70.00	125.00		40.00
CHLOROMETHANE	74-87-3	10.00	50.00	130.00		40.00
CIS-1,2-DICHLOROETHENE	156-59-2	10,00	65.00	125.00		40.00
CIS-1,3-DICHLOROPROPENE	10061-01-5	10.00	70.00	125.00		40.00
DIBROMOCHLOROMETHANE	124-48-1	10.00	65.00	130.00		40.00
DICHLORODIFLUOROMETHANE	75-71-8	10.00	35.00	135.00		40.00
ETHYLBENZENE	100-41-4	10.00	75.00	125.00		40.00
METHYL ACETATE	79-20-9	10.00	70.00	130.00		40.00
METHYLENE CHLORIDE	75-09-2	10.00	55.00	140.00		40.00
methyl-t-butyl ether	1634-04-4	10.00	75.00	126.00		40.00
STYRENE	100-42-5	10.00	75.00	125.00		
TERT-BUTYL ALCOHOL	75-65-0	10.00	50.00			40.00
TETRACHLOROETHENE	127-18-4	10.00	65.00	130.00		40.00
TOLUENE	108-88-3	10.00	70.00	140.00		40.00
TRANS-1,2-DICHLOROETHENE	156-60-5	10.00	70.00 65.00	125.00		40.00
TRANS-1,3-DICHLOROPROPENE	10061-02-6	10.00	65.00 65.00	135.00 125.00		40.00
TRICHLOROETHENE	79-01-6	10.00	75.00	125.00 1 25.00		40.00 40.00

Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8260B	Matrix:	SO					
QC Type: MS			e o Como e materia mustre a semino cuantica transfer a Costa social fastica se profesio profesio de	en en men en kanne edoum, ede engermande mentmerkhet behinger 2. ed dag gester en gelefe en			
TRICHLOROFLUOROMETHANE		75-69-4	10.00	25.00	185.00		40.00
VINYL CHLORIDE		75-01-4	10.00	60.00	125.00		40.00
Xylene (Total)		1330-20-7	10.00	83.00	125.00		40.00
QC Type: SURR							
1,2-DICHLOROETHANE-D4		17060-07-0	10.00	65.00	128.00		
BROMOFLUOROBENZENE		30135-88-7	10.00	77.00	111.00		
DIBROMOFLUOROMETHANE		1868-53-7	10.00	65.00	132.00		
TOLUENE-D8		2037-26-5	10.00	85.00	115.00		
Method: 8260B-TCLP	Matrix:	SO					
QC Type: LCS	e verbel i trougenstrig i gegen troos gewynadd i gyngefer sa						
1,1-DICHLOROETHENE		75-35-4	10.00	70.00	130.00		40.00
1,2-DICHLOROETHANE		107-06-2	10.00	70.00	130.00		40.00
2-BUTANONE		78-93-3	10.00	30.00	150.00		40.00
BENZENE		71-43-2	10.00	80.00	120.00		40.00
CARBON TETRACHLORIDE		56-23-5	10.00	65.00	140.00	and return a principle of the state of the s	40.00
CHLOROBENZENE		108-90-7	10.00	80.00	120.00		40.00
CHLOROFORM		67-66-3	10.00	65.00	135.00		40.00
TETRACHLOROETHENE		127-18-4	10.00	45.00	150.00		40.00
TRICHLOROETHENE		79-01-6	10.00	70.00	125.00		40.00
VINYL CHLORIDE		75-01-4	10.00	50.00	145.00		40.00
QC Type: MS	-						
1,1-DICHLOROETHENE		75-35-4	10.00	70.00	130.00		40.00
1,2-DICHLOROETHANE		107-06-2	10.00	70.00	130.00		40.00
2-BUTANONE		78-93-3	10.00	30.00	150.00		40.00
BENZENE		71-43-2	10.00	80.00	120.00		40.00
CARBON TETRACHLORIDE		56-23-5	10.00	65.00	140.00	ener comment och med till forstatte til förstatte til förstatte til förstatte til förstatte til förstatte til Till förstatte till	40.00
CHLOROBENZENE		108-90-7	10.00	80.00	120.00		40.00
CHLOROFORM		67-66-3	10.00	65.00	135.00		40.00
6/2012 2:13:28 PM			ADD wasies				

Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8260B-TCLP	Matrix:	SO					
QC Type: MS	e serim celebrar e con gran tan tan e celebra series e telebra	erakan Tara kerantukan sirus, dali tubanda Perangkan kelangkan dan kelalah Pener	er magneset i Aera de maet i er at steuer beit het en wet Steuer auf gesche ferstellt fin de steuer				
TETRACHLOROETHENE		127-18-4	10.00	45.00	150.00		40.00
TRICHLOROETHENE		79-01-6	10.00	70.00	125.00		40.00
VINYL CHLORIDE		75-01-4	10.00	50.00	145.00		40.00
QC Type: SURR							
1,2-DICHLOROETHANE-D4		17060-07-0	10.00	70.00	120.00		
BROMOFLUOROBENZENE		30135-88-7	10.00	75.00	120.00		
DIBROMOFLUOROMETHANE		1868-53-7	10.00	85.00	115.00		
TOLUENE-D8		2037-26-5	10.00	85.00	120.00		
Method: 8270C	Matrix:	SO					
QC Type: LCS							
1,1'-Biphenyl		92-52-4	10.00	50.00	150.00		40.00
2,4,5-TRICHLOROPHENOL		95-95-4	10.00	50.00	110.00		40.00
2,4,6-TRICHLOROPHENOL		88-06-2	10.00	45.00	110.00		40.00
2,4-DICHLOROPHENOL		120-83-2	10.00	45,00	110.00		40.00
2,4-DIMETHYLPHENOL		105-67-9	10.00	30.00	105.00		40.00
2,4-DINITROPHENOL		51-28-5	10.00	15.00	130.00		40.00
2,4-DINITROTOLUENE		121-14-2	10.00	50.00	115.00	and the streets of the restriction of the first of the fi	40.00
2,6-DINITROTOLUENE		606-20-2	10.00	50.00	110.00		40.00
2-CHLOROPHENOL		95-57-8	10.00	45.00	105.00	e en la environ en mais de la la propieta de la Colonia de la Colonia de la propieta de la propieta de la prop La colonia de la colonia d	40.00
2-METHYL-4,6-DINITROPHENOL		534-52-1	10.00	30.00	135.00		40.00
2-METHYLNAPHTHALENE		91-57-6	10.00	45.00	105.00	bereestere suitstation over selestation of the entire the filter and it effects to 1990.	40.00
2-METHYLPHENOL		95-48-7	10.00	40.00	105.00		40.00
2-NITROANILINE		88-74-4	10.00	45.00	120.00		40.00
3,3'-DICHLOROBENZIDINE		91-94-1	10.00	10.00	130.00		40.00
4-METHYLPHENOL		106-44-5	10.00	50.00	150.00	onne mette mennet fill til til stelle fra til stelle fill til stelle fill til stelle fill til stelle fill til s	40.00
ACENAPHTHENE		83-32-9	10.00	45.00	110.00		40.00
ACENAPHTHYLENE		208-96-8	10.00	45.00	105.00		40.00
ACETOPHENONE		98-86-2	10.00	50.00	150.00		40.00
ANTHRACENE		120-12-7	10.00	55.00	105.00	ermen verene steriorische Statistische Statistische Statistische Statistische Statistische Statistische Statist	40.00
ATRAZINE 6/2012 2:13:28 PM		1912-24-9	10.00	50.00	150.00		40.00

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8270C	Matrix: SO					
QC Type: LCS		overen is en mercen e statue e en en en en en en en en en en en en				
Azobenzene	103-33-3	10.00	50.00	150.00		40.00
BENZALDEHYDE	100-52-7	10.00	10.00	118.00		40.00
BENZIDINE	92-87-5	10.00	10.00	150.00		40.00
BENZO(A)ANTHRACENE	56-55-3	10.00	50.00	110.00		40.00
BENZO(A)PYRENE	50-32-8	10.00	50.00	110.00		40.00
BENZO(B)FLUORANTHENE	205-99-2	10.00	45.00	115.00		40.00
BENZO(G,H,I)PERYLENE	191-24-2	10.00	40.00	125.00		40.00
BENZO(K)FLUORANTHENE	207-08-9	10.00	45.00	125.00		40.00
BIS(2-CHLOROETHYL) ETHER	111-44-4	10.00	40.00	105.00		40.00
BIS(2-CHLOROISOPROPYL)ETHER	108-60-1	10.00	20.00	115.00		40.00
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	10.00	45.00	125.00		40.00
BUTYLBENZYL PHTHALATE	85-68 - 7	10.00	50.00	125.00		40.00
CAPROLACTAM	105-60-2	10.00	50.00	150.00		40.00
CARBAZOLE	86 - 74-8	10.00	45.00	115.00		40.00
CHRYSENE	218-01-9	10.00	55.00	110.00		40.00
DIBENZ(A,H)ANTHRACENE	53-70-3	10.00	40.00	125.00		40.00
DIETHYL PHTHALATE	84-66-2	10.00	50.00	115.00		40.00
DI-N-BUTYL PHTHALATE	84-74-2	10.00	55.00	110.00		40.00
DI-N-OCTYL PHTHALATE	117-84-0	10.00	40.00	130.00		40.00
FLUORANTHENE	206-44-0	10.00	55,00	115.00		40.00
FLUORENE	86-73-7	10.00	50.00	110.00		40.00
HEXACHLOROBENZENE	118-74-1	10.00	45.00	120.00		40.00
HEXACHLOROBUTADIENE	87-68-3	10.00	40.00	115.00		40.00
HEXACHLOROCYCLOPENTADIENE	77-47-4	5.00	8.00	148.00		40.00
HEXACHLOROETHANE	67-72-1	10,00	35.00	110.00		
INDENO(1,2,3-CD)PYRENE	193-39-5	10.00	40.00	120.00		40.00
ISOPHORONE	78-59-1	10.00	45.00	120.00		40.00
NAPHTHALENE	91-20-3	10.00	40.00 40.00	State of the late of the control of		40.00
NITROBENZENE	98-95-3	10.00	40.00	105.00		40.00
N-NITROSODIMETHYLAMINE	62-75-9	10.00	40.00 50.00	115.00		40.00
N-NITROSO-DI-N-PROPYLAMINE	621-64 - 7	10.00	40.00	150.00		40.00
N-NITROSODIPHENYLAMINE	86-30-6	10.00	40.00 50.00	115.00 115.00		40.00 40.00

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8270C	Matrix: SO					
QC Type: LCS	en von Entransiering (g.) i en des jerste sooksteers en die bevoorbegen voor 2,2000 en Entransie	en en en en en en en en 1924 e 2020, en en en en en en en en en en en en en				
PENTACHLOROPHENOL	87-86-5	10.00	25.00	120.00		40.00
PHENANTHRENE	85-01-8	10.00	50.00	110.00		40.00
PHENOL	108-95-2	10.00	40.00	100.00		40.00
PYRENE	129-00-0	10.00	45.00	125.00		40.00
QC Type: MS						
1,1'-Biphenyl	92-52-4	10.00	50.00	150.00		40.00
2,4,5-TRICHLOROPHENOL	95-95-4	10.00	50.00	110.00		40.00
2,4,6-TRICHLOROPHENOL	88-06-2	10.00	45.00	110.00		40.00
2,4-DICHLOROPHENOL	120-83-2	10.00	45.00	110.00		40.00
2,4-DIMETHYLPHENOL	105-67-9	10.00	30.00	105.00		40.00
2,4-DINITROPHENOL	51-28-5	10.00	15.00	130.00		40.00
2,4-DINITROTOLUENE	121-14-2	10.00	50.00	115.00		40.00
2,6-DINITROTOLUENE	606-20-2	10.00	50.00	110.00		40.00
2-CHLOROPHENOL	95-57-8	10.00	45.00	105.00		40.00
2-METHYL-4,6-DINITROPHENOL	534-52-1	10.00	30.00	135.00		40.00
2-METHYLNAPHTHALENE	91-57-6	10.00	45.00	105.00		40.00
2-METHYLPHENOL	95-48-7	10.00	40.00	105.00		40.00
2-NITROANILINE	88-74-4	10.00	45.00	120.00		40.00
3,3'-DICHLOROBENZIDINE	91-94-1	10.00	10.00	130.00		40.00
4-METHYLPHENOL	106-44-5	10.00	50.00	150.00		40.00
ACENAPHTHENE	83-32-9	10.00	45.00	110.00		40.00
ACENAPHTHYLENE	208-96-8	10.00	45.00	105.00		40.00
ACETOPHENONE	98-86-2	10.00	50.00	150.00		40.00
ANTHRACENE	120-12-7	10.00	55.00	105.00		40.00
ATRAZINE	1912-24-9	10.00	50.00	150.00		40.00
Azobenzene	103-33-3	10.00	50.00	150.00		40.00
BENZALDEHYDE	100-52-7	10.00	10.00	118.00		40.00
BENZIDINE	92-87-5	10.00	10.00	150.00		40.00
BENZO(A)ANTHRACENE	56-55-3	10.00	50.00	110.00		40.00
BENZO(A)PYRENE	50-32-8	10.00	50.00	110.00		40.00
BENZO(B)FLUORANTHENE	205-99-2	10.00	45.00	115.00		40.00

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8270C	Matrix: SO		and the same of the same of the same of the same of the same of the same of the same of the same of the same of			
QC Type: MS	ammann, ann ann am tactabann i graphin 's an death ann an am air an 1875 i bhliair 1977 i 1875 i 1875 i 1875 i					
BENZO(G,H,I)PERYLENE	191-24-2	10.00	40.00	125.00		40.00
BENZO(K)FLUORANTHENE	207-08-9	10.00	45.00	125.00		40.00
BIS(2-CHLOROETHYL) ETHER	111-44-4	10.00	40.00	105.00		40.00
BIS(2-CHLOROISOPROPYL)ETHER	108-60-1	10.00	20.00	115.00		40.00
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	10.00	45.00	125.00		40.00
BUTYLBENZYL PHTHALATE	85-68-7	10.00	50.00	125.00		40.00
CAPROLACTAM	105-60-2	10.00	50.00	150,00		40.00
CARBAZOLE	86-74-8	10,00	45.00	115.00		40.00
CHRYSENE	218-01-9	10.00	55.00	110.00		40.00
DIBENZ(A,H)ANTHRACENE	53-70-3	10,00	40.00	125.00		40.00
DIETHYL PHTHALATE	84-66-2	10.00	50.00	115.00		40.00
DI-N-BUTYL PHTHALATE	84-74-2	10.00	55.00	110.00		40.00
DI-N-OCTYL PHTHALATE	117-84-0	10.00	40.00	130.00		40.00
FLUORANTHENE	206-44-0	10.00	55.00	115.00		40.00
FLUORENE	86-73-7	10.00	50.00	110.00		40.00
HEXACHLOROBENZENE	118-74-1	10.00	45.00	120.00		40.00
HEXACHLOROBUTADIENE	87-68-3	10.00	40.00	115.00		40.00
HEXACHLOROCYCLOPENTADIENE	77-47-4	5.00	8.00	148.00		40.00
HEXACHLOROETHANE	67-72-1	10.00	35.00	110.00		40.00
NDENO(1,2,3-CD)PYRENE	193-39-5	10.00	40.00	120.00		40.00
SOPHORONE	78-59-1	10.00	45.00	110.00		40.00
NAPHTHALENE	91-20-3	10.00	40.00	105.00		40.00
NITROBENZENE	98-95-3	10.00	40.00	115.00		40.00
N-NITROSODIMETHYLAMINE	62-75-9	10.00	50.00	150.00		40.00
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	10.00	40.00	115.00		40.00
N-NITROSODIPHENYLAMINE	86-30-6	10.00	50.00	115.00		40.00
PENTACHLOROPHENOL	87 - 86-5	10.00	25.00	120.00		40.00
PHENANTHRENE	85-01-8	10.00	50.00	110.00		
PHENOL	108-95-2	10.00	40.00	100.00		40.00
PYRENE	129-00-0	10.00	45.00	125.00		40.00 40.00

Analyte Name		Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8270C	Matrix:	SO					
QC Type: SURR						ELEXION PROCESSES	
2,4,6-TRIBROMOPHENOL		118-79-6	10.00	35.00	125.00		
2-FLUOROBIPHENYL		321-60-8	10.00	45.00	105.00		
2-FLUOROPHENOL		367-12-4	10.00	35.00	105.00		
NITROBENZENE-D5		20810-28-0	10.00	35.00	100.00		
PHENOL-D5		4165-62-2	10.00	40.00	100.00		
TERPHENYL-D14		98904-43-9	10.00	30.00	125.00		
Method: 8270C-TCLP	Matrix:			300	120.00		
		<u></u>					
QC Type: LCS							
1,4-DICHLOROBENZENE		106-46-7	10.00	30.00	100.00		
2,4,5-TRICHLOROPHENOL		95-95-4	10.00	50.00	110.00		
2,4,6-TRICHLOROPHENOL		88-06-2	10.00	50.00	115.00		
2,4-DINITROTOLUENE		121-14-2	10.00	50.00	120.00		
2-METHYLPHENOL		95-48-7	10.00	40.00	110.00		
3&4-Methylphenol		106-44-5	10.00	30.00	110.00		
HEXACHLOROBENZENE		118-74-1	10.00	50.00	110.00		
HEXACHLOROBUTADIENE		87-68-3	10.00	25.00	105.00		
HEXACHLOROETHANE	e como como se estado en como porte de estado estado se estado estado en estado en estado en estado en estado e	67-72-1	10.00	30.00	95.00		
NITROBENZENE		98-95-3	10.00	45.00	110.00		
PENTACHLOROPHENOL		87-86-5	10.00	40.00	115.00		
PYRIDINE		110-86-1	10.00	10.00	106.00		
QC Type: MS					ester of the summer control and a state of the property of the control of the con		
1,4-DICHLOROBENZENE		106-46-7	10.00	30.00	100.00		40.00
2,4,5-TRICHLOROPHENOL		95-95-4	10.00	50.00	110.00		40.00
2,4,6-TRICHLOROPHENOL		88-06-2	10.00	50.00	115.00		40.00
2,4-DINITROTOLUENE		121-14-2	10.00	50.00	120.00		40.00
2-METHYLPHENOL		95-48-7	10.00	40.00	110.00		40.00
3&4-Methylphenol		106-44-5	10.00	30.00	110.00		40.00
HEXACHLOROBENZENE		118-74-1	10.00	50.00	110.00		40.00
HEXACHLOROBUTADIENE		87-68-3	10.00	25.00	105.00		40.00
HEXACHLOROETHANE		67-72-1	10.00	30.00	95.00		40.00
/6/2012 2:12:20 DM				00	00.00		70.00

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: 8270C-TCLP Mat	rix: SO					
QC Type: MS		e e e e e e e e e e e e e e e e e e e				
NITROBENZENE	98-95-3	10.00	45.00	110.00		40.00
PENTACHLOROPHENOL	87-86-5	10.00	40.00	115.00		40.00
PYRIDINE	110-86-1	10.00	10.00	106.00		40.00
QC Type: SURR						
2,4,6-TRIBROMOPHENOL	118-79-6	10.00	40.00	125.00		
2-FLUOROBIPHENYL	321-60-8	10.00	50.00	110.00		
2-FLUOROPHENOL	367-12-4	10.00	20.00	110.00		
NITROBENZENE-D5	20810-28-0	10.00	40.00	110.00		
PHENOL-D5	4165-62-2	10.00	10.00	115.00		
TERPHENYL-D14	98904-43-9	10.00	50.00	135.00		
Wethod: 9012 Mat	rix: SO					
QC Type: LCS			one commence of the control of the c		in termination of the state of	
CYANIDE	57-12-5	10.00	80.00	120.00		
QC Type: MS						
CYANIDE	57-12-5	10.00	75.00	125.00		
Method: DOE 4.5.2.3 Mat	rix: SO					
QC Type: LCS					enteriores de la primera de la companya de la comp	
Ac-228	14331-83-0	104.00	104.00	130.00		3.92
Bi-212	14913-49-6	57.00	57.00	90.00		3.92
Bi-214	14733-03-0	96.00	96.00	120.00		3.92
K-40	13966-00-2	102.00	102.00	118.00		3.92
Pb-212	15092-94-1	107.00	107.00	128.00	ere en en en men met menet de en de distance militage de financie de la companya de la companya de la companya	3.92
Pb-214	15067-28-4	99.00	99.00	127.00		3.92
Ra-226	13982-63-3	65.00	65.00	106.00	erennen anderen den den en en eren er er er er er er er er er er er er er	3.92
Ra-228	15262-20-1	104.00	104.00	130.00		3.92
Th-234	15065-10-8	13.00	13.00	370.00		3.92
6/2012 2:13:29 PM		ADD version	-			

Analyte Name	Analyte Label (CAS)	Lower Rejection (%)	Lower Recovery (%)	Upper Recovery (%)	Upper Rejection (%)	RPD (%)
Method: EPA 1010 M	atrix: SO					
QC Type: LCS		rendan vir et erver, um annes um variet grei variet generale (gan vir et erverar et eus ga		erre namen statem of it kenzysjä 200 soch pilotokiel kreist (intigessroom) kilo		
IGNITABILITY	10-36-6	50.00	80.00	120.00		25.00
Method: SW846_7.3.1 Ma	atrix: SO					
QC Type: LCS				n a. Expression of the state of the design file Monthline (1999 a 1999 (1954 (1950) file) file	een minima minima di maka mara mara di mara di mara (1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1	
Reactive Cyanide	57-12-5	0.00	0.00	12.40		20.00
QC Type: MS						
Reactive Cyanide	57-12-5	0.00	0.00	12.40		20.00
Method: SW846_7.3.2 Ma	atrix: SO					
QC Type: LCS			er in modern ein i modern er sein ernem med Eurobsking beta moderne verlich bed	returnes et a general e estado los displacades e de la servicio forma que los polycidos comos	er i i i met como el vita i me social mis anterios de cruando asiante de la comercia de la comercia de la come	
Reactive Sulfide	18496-25-8	10.00	22.60	114.00		20.00
QC Type: MS						
Reactive Sulfide	18496-25-8	10.00	22.60	114.00		20.00

APPENDIX 5

STANDARD SAMPLE TRACKING AND DOCUMENTATION FORMS, REVIEW FORMS AND CHECKLISTS

SAMPLE IDENTIFICATION LABEL

I-CHEM

· · · · · · · · · · · · · · · · · · ·
☐ GRAB ☐ COMPOSITE OTHER:
DATE
TIME
PRESERVATIVE
COLL BY

CHAIN-OF-CUSTODY FORM

CHAIN OF CUSTODY RECORD

								PARAMETERS						INDUSTRIAL	
								Д,	1 MANG 1 EMB					HYGIENE BAMPLE	
				(Printed)	•	18		/					./		
PATE	Live	8	GRAB	STATION LOCATION	\\ \{\xi\$	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		/	/	/	//	/	/		REMARKS
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				(Printed)	 		<u> </u>	-							
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Distribution: Original Plus One Accompanies Shipmont (white and yellow); Copy to Coordinator Field Files (pink).

Preparatory Phase Checklist

Spec	tract: c. Section & Paragraph: wing Sheet Numbers:	Date Preparatory Held: Definable Feature of Work: Major Definable Feature:						
Α.	Personnel Present							
	Name	Position		Company				
В.	Has each spec. paragraph, dra	wing, and shop d	rawing detail bee	n studied? Yes 1	No			
C.	Transmittals Involved							
	Number and Item	Code	Contractor/C	Government Approv	<u>'al</u>			
	Have all items involved been	approved? Y	es No					
D.	Are all materials on-hand? Y	es No						
	Are the materials on the job-si		ated the same as t	hose approved?				
	Have all materials been cldrawings? Yes No		ract compliance	against approved	shop			
	Equipment to be used in executing the work:							
	Items not on-hand or not in co	mnliance with tr	anemittale.					

E.	Tests required in accorda	nce with contract requirements	
	Test	Par	agraph
•			
F.	Accident Prevention Plan	nning - Hazard Control Measure	es:
Activ	vity Hazard Analysis Activity	Hazard(s)	Controls
	Activity	nazaiu(s)	Condois
	Operational Equipment O <u>Attached For:</u>	Checklist	
	On File For:		
G.	Have procedures for acco	omplishing work been reviewed	with appropriate people?
	Scope of Work/Method of	of Construction:	
	Safety Issues:		
	Spill Prevention Issues:		
Н.	Has all preliminary work this segment of work read		with contract requirements and is
	Explain any problems:		

CQC Systems Manager	Project Engineer
Sevenson Comments:	
ositob comments.	
USACE Comments:	
I. Remarks:	

Initial/Follow-Up Phase Inspection Checklist

Inspe	ection Type:		Initial Phase		Follow-Up Phase
Date:				Specification	ns Paragraph:
Desc	ription and loc	ation of	f work inspected:		
	4.494.494.494.4				
Refer	rence contract	drawing	gs:		
A.	Personnel Pr Nam			Position	Company
В.	YES	NO	O	_	n the Contract Plans and Specifications?
C.	of the Contr	act Spe	cifications? YES	S NO	strict compliance with the requirements
D.	Workmansh State areas v	ip is ac where i	ceptable? YES nprovement is no	eeded:	
Е.	Safety viola	tions ar	nd corrective acti		
F.	Remarks:				
Qual	ity Control Rep	oresenta	ative	– Proje	ect Engineer

DAILY CHEMICAL QUALITY CONTROL REPORT (Page 1 of 2)

	Date:
Job Identification and Site Numbers:	
Weather:	
Subcontractors Present Onsite:	
Health and Safety Measures Necessary for Planned Activities:	
Health and Safety Violations and Corrective Actions:	
Planned Daily Activities:	
Description of Chemical Data Acquisition Work Performed:	
	•
Sample Shipments and Problems Regarding Sampling and Sample Shipments	nts:

Chemical Parameter Measurement Problems:
Contingency Sampling:
Non-conformance Problems:
Corrective Actions (including approvals):
''' 1 CD 1D C ' C '' 4 ''
nitials of Personnel Performing Corrective Actions:
mplemented Chemical Quality Control Activities (including summary of feedback resulting
rom corrective actions taken):
CERTIFICATION: As Chemical Quality Control Manager, I certify that the above report is
omplete and correct and that I, or my authorized representative, have inspected all work
erformed this day by key staff and have determined that all materials, equipment and
vorkmanship are in strict compliance with the plans and specifications, except as my be noted
bove.

SITE OC INSPECTION REPORT

Project	t Name _	·	Client/Generator
Sevens	on Job #	!	Contract #
Project	t Locatio	n	Task Order #
Inspect	tion Date	·	Inspection Time
Inspect	ted By _		
Sevens	on Proje	ct Manaş	ger Client/Generator Project Manager
Site Te	lephone	#	Contact Telephone #
Site Fa	csimile #	‡	Contact Facsimile #
Site En	nail Add	ress	
	•		
			Site Plans/Activities
Constr	metion N	//anagen	nent Plan/Work Plan
Compti	action 1	ranagen	ucht I iain vvoi a I iait
	Origin	al Annro	val Date
			oval Date (if applicable)
	YES	NO	
			Current Plan Copy Available Onsite
			Spill Response equipment/materials available?
			Soil erosion/sediment controls in-place?
			Work zones (EZ, CRZ, SZ) clearly delineated? All equipment inspections being documents (in and out)?
•	Ц		An equipment inspections being documents (in and out)?
COMM	ENTS:_		

Health and Safety

_		pproval Date val Date (if applicable)
YES	NO	Current Plan Copy Available Onsite Activity Hazard Analysis Complete and Updated Daily Safety Meetings Conducted and Documented Emergency Response Information Posted Medical and Training Documentation Current Daily Safety Logs Completed Chemical Inventory Updated Inspections Completed and Documented Map to hospital prominently displayed? Is work being conducted safely?
COMM	ÆNTS:	
		Sampling and Analysis pproval Date val Date (if applicable)
YES	NO	
		Is a current plan copy available onsite?
		Has a review of the Plan and all relevant SOPs with all site sampling been conducted?
		Are field logbooks and other site documentation maintained properly and in a secure area?
		Are Preparatory Inspections being conducted prior to each sampling event?
		Are Initial and Follow-up Inspections being conducted for each sampling event?
		Is the site Sampling Manager performing periodic field audits of all sampling activities? Is field documentation being reviewed by the site Sampling Manager prior to the completion of each days' sampling events?
		Is the Sampling Manager performing field audits of sample labeling, chain-of-custody, packing and shipping activities?
		Are Daily Chemical Quality Control Reports (DCQCR) being completed each day and
		properly? Are DCQCR, instrument maintenance and calibration, nonconformance/corrective action reports and sampling logs current?
COMM	ŒNTS: _	

<u>Proje</u>	ct Work Tasks	<u>Sevenson Checklist #</u>		
(Check al	I that apply and attach completed QC Report)			
	Monitoring Well Installation, Development, and/or Abandonment	SES 001		
	Groundwater Monitoring Well Sampling	SES 002	·	
	Surface Water Sampling	SES 003		
	Subsurface Soil Sampling	SES 004		
	Drum/Tank Sampling	SES 005		
	Mobile Laboratory	SES 006		
	Packing, Storing, and Shipment of Samples	SES 007		
	Field Documentation	SES 008		
	Decontamination	SES 009		
	Sample Cooler Shipment	SES 010		
	Onsite Waste Storage	SES 011		
	Offsite waste Transport/Disposal	SES 012		
COMME	NTS:			
Sevenso	on Project ManagerName	Signature	Date	
QC Rev	iewer			
	Name	Signature	Date	
CQC Sy	vstems Manager			
	Name	Signature	Date	

TASK SPECIFIC QC CHECKLIST Work Task: Packing, Storing, and Shipment of Samples Sevenson Checklist #007

Project Name/Job Number: Inspection Date:				
Complete this form for each cooler/shipment inspected. Answer each question appropriate column (yes, no, not observed (N/O), or not applicable (N/A)). If "explanation of the non-compliance and associated corrective action(s).				ide an
	<u>Yes</u>	No	N/O	N/A
Were the samples handled according to the FSP and QAPP?				
Did the samples remain on ice or refrigerated (except for sample transfer from coolers or refrigerators) from collection until the cooler was taped for shipment?			-	
Were sample containers prepared for shipment (bubble-wrap, Zip-Lock™ bags, etc) per SAP procedures?				
Was a trip blank (for VOC samples only) and a temperature blank included in each cooler?				
Was loose ice double Zip-Lock TM - bagged prior to placement in cooler?				
Was ice placed in equal proximity to all sample containers and the temperature blank to ensure samples arrive at lab at 4°C?				
Were Chain-of-Custody forms filled out accurately and completely, including the project name and number, sampling date and time, analytical parameters, preservatives, size and number of containers for each analytical parameter, and media sampled?				
Were Chain-of-Custody forms signed and dated by the preparer and the form taped to the inside of the cooler lid?				
Were signed and dated custody seals properly placed on the cooler and the cooler sealed with strapping tape?				
Was a shipping label attached to the cooler?				
Were COCs and shipping tracking labels faxed to lab?				
Notes/Comments			**********	·
QC Inspector Name and Signature				
Date				

TASK SPECIFIC QC CHECKLIST Work Task: Field Documentation Sevenson Checklist #008

	<u>Yes</u>	No	N/A
Was all original field data recorded in black indelible ink?			-
Were logbooks filled out properly, accurately recounting the day's events?			
Were all field forms completed and information accurately recorded?			
• Field Sampling Forms			
 Chain of Custody Forms 			
• Field Log Books			
 Field Change Request Forms 			
Additional Forms (list below)			
Was field documentation forwarded to Sevenson office for peer/QC review?			
Were deficiencies reported to the Field Sampling Manager?			
otes/Comments			
C Inspector Name and Signature			-

TASK SPECIFIC QC CHECKLIST Work Task: Decontamination Sevenson Checklist #009

Project Name/Job Number: Inspection Date:				
Complete this form for each day samples are taken. Answer each the appropriate column (yes, no, not observed (N/O), or not applichecked, provide an explanation of the non-compliance and asso action(s).	icable (N/A). If "n	ing o" is
	Yes	No	N/O	N/A
Was all sampling equipment decontaminated properly prior to use and between sample intervals?				
Was each decontamination event recorded in the logbook?				
Was investigation derived waste (IDW) (e.g., decontamination water, personal protective equipment (PPE), etc.) handled properly?				
Were the location, type, number and source of containers of IDW recorded in the logbook?				
Was Sevenson Technical Services notified if IDW requires offsite disposal?				
Notes/Comments				
QC Inspector Name and Signature		•		
Date				

TASK SPECIFIC QC CHECKLIST Work Task: Sample Cooler Shipment Sevenson Checklist #010

	ct Nam ection I	ie/Job N Date:		
	PRE	PARA	TORY PHASE	
<u>Yes</u>	No	N/A		Comment
			Have sample shipment procedures in the SAP been reviewed by all field sampling personnel?	COMMISSION
	Ċ		Are sufficient numbers of clean, hard plastic coolers available onsite to meet current sampling schedule?	•
			Are sufficient packing supplies (i.e. Ziplock™ plastic bags, packing "peanuts", sealing tape, etc.) available onsite?	
			Are laboratory chain-of-custody forms, custody seals, and extra sample container labels available onsite?	
			Has a common carrier (Federal Express, UPS, etc.) been selected and have package pickup points and times been identified?	
Г	Ο,	0	Will sample coolers be D.O.T. regulated for shipping purposes and are D.O.T. required shipping labels and logs available at the site?	
			Have the offsite primary and QA laboratories been contacted to verify anticipated sample collection and shipment schedules?	
			Does the primary and QA laboratory have a list of sample shipping site contacts should there be problems or questions?	
			Is an ice source available on or near the site?	
	INITI	AL PHA	SE OR D FOLLOW-UP PHASE	
Yes	No	N/A		Comment
——————————————————————————————————————			Has a Branavatow Dhogo mosting beautiful 19	
			Has a Preparatory Phase meeting been conducted? Where sample containers received from the field properly labeled, prepared, and recorded in the field logbook and in the site sample summary log per the SAP?	
		0	Was the sample cooler inspected to verify that it was clean, undamaged, and had no external markings or shipping addresses unrelated to the project?	

		Was the cooler inspected to verify that the site name, address, telephone number and contact name was written in indelible ink on the interior of the cooler lid?	
		Was the cooler drain plug (if present) securely taped shut on both the interior and exterior sides?	
		Was a clean, new plastic garbage bag placed into the cooler as a secondary liner?	
		Where all samples, field duplicates, QA splits, and rinse blanks verified by checking sample labels against field logbook entries as chain-of-custody forms were completed?	
日		Were chain-of-custody forms completed per SAP?	
		Were sample containers placed into separate Ziplock™ bags before being placed in an upright position in the cooler?	
		Was packing material placed between sample containers to prevent shifting or breakage during shipment?	
		Was a temperature blank placed in close proximity to sample containers?	
		If required, was double Ziplock™-bagged ice placed in the cooler in contact with all sample containers?	
		Was the outer garbage bag sealed with a twist-tie or knot?	
		Were chain-of-custody forms placed inside a Ziplock TM bag and taped to the inner lid of the cooler?	
		Was the closed cooler lid checked to verify a proper closure and was fiber-reinforced strapping tape placed around both of its ends at least twice?	
		Were handling labels and D.O.T. hazard labels (if required) placed on the outside of the cooler?	
		Were a minimum of two (front and side) completed custody seals placed across the lid opening to verify cooler integrity?	
		Was an address label with both the "shipped from" and "shipped to" addresses applied to the top of the cooler?	
		Was the common carrier airbill (or other shipping form) properly completed and attached to the cooler?	
	Π.	Was the "shipper's copy" of the airbill retained at the site and attached to the DCQCR?	
		Were all destination laboratories notified of sample shipments?	

Comments.			
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· ·			
Sevenson Project Manager			
-	Name	Signature	Date
QC Reviewer			
	Name	Signature	Date
CQC Systems Manager			
	Name	Signature	Date
	1144110	Digitatitic	Date

Field Change Request Form

	PRC	JECT	MANAG	BER:						
	PRC)JECT:								•
		NUME	3ER:							
	CON	TRAC	T NUME	3ER:						
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,	Wind Jumidity		Moderate Moderate	High Humid	-					
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EQUIP	MENT O	N SITE:		1-1					·	
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PROJE	CT TECH	HNICAL D	IRECTOR N	IOTIFIED:	TIME	.		DATE	INITIALS	~
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JOB NO.		,	DATE		M. W. Sangaran
ACTION TO BE TAKEN:					
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	<u></u>				
HEALTH AND SAFETY LEVEL CHAI	NGES:	No	Yes (explain)		
HSO NAME/DATE:	·				
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PROBLEM RESOLUTION:	V-1-744-1				
PROBLEM RESULUTION.					***************************************
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SPECIAL NOTES:					
FOLLOW-UP TO BE FILED?	No	Yes (expla	in/attach)		
				-	
FIELD CHANGE APPROVED:	No	Yes	Initials:		P
		FR		Sheet	of
BY:			TITLE:		

NON-CONFORMANCE/QUALITY CONTROL REPORT

Date:		
Organization Name:		
Initiator's Name and Title:		
Problem Description:		
Reported To:		
Corrective Action:		
		narana i
Reviewed and Implemented I	y:	

APPENDIX 6

LABORATORY STANDARD OPERATING PROCEDURES

(Provided on CD only; hard copies available upon request)

Comments Matrix – Security Plan (Transmittal No 01540-8) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc.

			Reviewer – ARCADIS-US, Inc.	
Reviewer Comment No	Page /Para	Section	Comment	Response
1	NA	General	Specification Section 01540, Paragraph 3.2.2 requires submission of the name and experience of the proposed security firm, and names and qualifications of security personnel, as part of the Site Security Plan submission. The submitted plan states this information will be forwarded "during mobilization activities". Please forward proposed security firm information prior to mobilization activities.	No security firm is being hired for this task order. In the unlikely event a homeowner has to be relocated, a security firm will be hired to secure that property. No information on the security firm is available until such time relocation occurs.
2	NA	General	Specification Section 01540, Paragraph 3.2.2 requires information on the security organization not included in the plan, such as a description of safety training of security personnel. Please provide this information as part of the submittal.	See Response 1 above.
3	NA	General	The plan does not indicate a copy of the emergency checklist, providing all emergency numbers for hospitals, ambulance service, law enforcement, paramedics, and fire departments will be posted. Please include this information as part of this plan as required in Specification Section 01540, Paragraph 3.3.f.	Page 6, par. 4 indicates that the list will be posted.
4	2	Security Plan Objectives	The plan states the guardhouse will have an unarmed guard, but the plan later references security officers carrying weapons. Please modify plan for consistency.	This bulleted item has been deleted from the plan

Security Plan

Rev 1

Cornell Dubilier Superfund Site
OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

July 2012

I. SECURITY PLAN OBJECTIVES

The principal objectives of the Security Plan include:

- Deterrence, restriction, and/or control of financial losses to the property owner and Sevenson. This includes prevention or detection of theft, vandalism, sabotage, and arson.
- Restriction of unauthorized individuals from entering the site and suffering any injuries.
- Prevention of unauthorized individuals from entering the site and removing equipment,
 personal property, or hazardous substances.
- Preemption of unauthorized individuals from taking action on the site that might exacerbate the environmental problem or interfere with its remediation.
- Ensure the security of the vacated homes during the remediation of the individual properties.

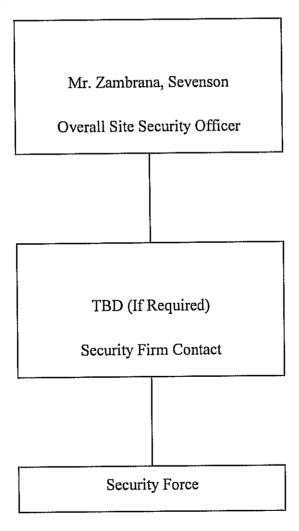
Sevenson will perform the on-site security service. All pertinent information relating to the security force will be forwarded to the USACE. In the event homes have to be vacated, Sevenson will subcontract the security firm.

If subcontracted, the security firms experience will be forwarded under a separate submittal. A chief security officer will be designated by the security service. This person will be the responsible person whom Sevenson will deal with on a daily basis concerning security matters. Mr. Zambrana will serve as Sevenson's overall site security officer. Mr. Zambrana has 40 hours of OSHA training and will be allowed into exclusion zones to investigate any incidences.

Security will be utilized for all non-working hours and 24 hours per day for weekends and holidays, for the duration of the project to prevent unauthorized access to the site. Fencing and gates posting proper warning signs will be installed in accordance with the contract

specifications as part of the security requirements. Temporary lighting will be provided, as required, to ensure effective surveillance during evening hours. A guardhouse with an unarmed guard will be maintained at the entrance to the site.

II. SECURITY ORGANIZATION CHART



The functional responsibility of each security individual is summarized below:

Mr. Zambrana, Sevenson: Overall Site Security Officer

- Intermediary between USACE and Security Firm;
- Ensures compliance of the Security Plan;
- Maintains records of incidences;
- · Investigates incidences; and
- Liaison for local police and fire agencies.

SECURITY FIRM CONTACT

Formal contact between Sevenson and Security.

CHIEF SECURITY OFFICER.

- Coordinates and schedules security force personnel;
- Maintains daily interface with security force;
- Makes initial contact between security force and agencies to report incidents;
 and
- Reports incidents to Sevenson's Overall Site Security Officer.

SECURITY FORCE.

- Deterrence, restriction, and/or control of financial losses to the property owner and Sevenson. This includes prevention or detection of theft, vandalism, sabotage, and arson.
- Restriction of unauthorized individuals from entering the site and suffering any injuries.
- Prevention of unauthorized individuals from entering the site and removing equipment, personal property, or hazardous substances.

- Preemption of unauthorized individuals from taking action on the site that might exacerbate the environmental problem or interfere with its remediation.
- Ensure the security of the vacated homes during the remediation of the individual properties.

III. SECURITY PERSONNEL

Requirements for employment for all security officers will include the following:

- Detailed pre-employment history establishing moral character and dependability.
- Investigation, which clears applicant of felony convictions.
- Failure to maintain attentive and alert status in performance of duties, which includes sleeping while on duty and intoxication on the job, are completely unacceptable and will be grounds for not employing or for terminating employment.
- Sevenson's Site Security Officers will have 40 hours of OSHA training in an approved course meeting the requirement of Section 126(b) (2) of 29 CFR 1910.
- Site Security Personnel will have detailed knowledge of EM-385-1-1, for Government projects, and the Security Plan, and have no less than eight hours of training in the Site Safety and Emergency Response Plan. Additionally, the Security Personnel will have knowledge of their individual duties in evacuation of injured and disabled employees from both contaminated and non-contaminated areas of this project.
- Site Security Officers will be physically fit, literate in the English language,
 experienced, stable, reliable, and possess the physical and psychological skills that are
 necessary to control unauthorized persons on the site.

IV. SITE SECURITY REQUIREMENTS

If required, a Security Officer will be on the site 24 hours per day (including weekends or days where no activities are in progress) for the entire duration of remedial activities,

once remediation activities have commenced. One security officer will be assigned to each construction area and will patrol the properties within such areas on an hourly basis. Security measures will cease in an individual area once the USACE has provided final acceptance of that area's remediation. Sevenson will be responsible for establishing security, as necessary, to protect the personal property of existing property owners/residents temporarily relocated during remedial activities, as applicable.

A security guardhouse will be established at the main entrance to the mobilization/support are for the purposes of record-keeping and administering security. A small, temporary trailer will be equipped with a telephone, two-way radios, lights, and a desk.

Security will maintain a log of all security incidents. This log will be furnished to the USACE upon request.

Gates in all fences will remain closed to provide security of the Exclusion and Contamination Reduction Zones.

The USACE will have the right to approval and rejection of any and all security-assigned personnel for the duration of the Contract.

Security Officers will conduct surveys of the site perimeter during working hours, and hourly inspections of the entire site during off-work hours for the duration of the project. A logbook will be kept at the guardhouse to record observations of site conditions made during surveys.

Security Officers will be responsible for maintaining secure site conditions to protect against any unauthorized entry. Should individual(s) attempt unauthorized entry; the

Security Officer will be responsible for warning the individuals. If unauthorized person(s) ignore the warnings, the security officer will notify appropriate law enforcement personnel to remove the person(s).

During patrols, security personnel will be in proper attire. Routes will be defined based on work activity such that security personnel can be protected from the hazardous materials.

Sevenson will maintain a current list of personnel approved to be present on the job site. A copy of such list is provided at the end of this Plan. Authorized personnel, only, may make changes to the job site list.

A copy of the emergency checklist providing all emergency numbers for hospitals, ambulance service, law enforcement, paramedics, and fire departments, will be posted in all on-site offices, and at the designated project information board.

Sevenson will contact law enforcement officials, emergency medical care units, local fire departments, and utility emergency teams to ascertain the type of response required in any emergency situation and will coordinate the responses of the various units. Sevenson will prepare and update a list of emergency points of contact, telephone numbers, radio frequencies, and call signs to ensure dependable responses from these various agencies.

The Exclusion Zones and Contamination Reduction Zone, identified as active hazardous work areas, will be posted with signs clearly visible in each area declaring, *WARNING HAZARDOUS AREA*, *DO NOT ENTER*, *AUTHORIZED PERSONNEL ONLY*. The design of signs will conform to Section 10.6.02 of EM 385-1-1, for Government projects.

Security will make sure that the perimeter fencing and all warning signs are secure and intact on a daily basis. If deterioration of the site security fence is observed, if gates and doors are left unlocked, or if warning signs are removed, the situation will be rectified immediately. The USACE will be informed immediately of any vandalism to fences, gates, or facilities. Any acts of vandalism will also be reported to the proper law enforcement officials.

Temporary lighting will be provided to ensure effective surveillance at night in active construction areas and for dwellings where property owners have been relocated.

Lighting will be maintained for the duration property owners/residents are relocated.

V. PERSONNEL IDENTIFICATION

Sevenson may provide security identification tags specific to the site for all on-site personnel and other personnel entering the site, showing:

- Name of individual;
- Occupation; and
- Name of Employer.

Sevenson will be responsible for, and guarantee, that security identification will be worn by each individual and remain visible at all times while the individual is onsite. Badge assignments will be based on criteria included in the Site Safety & Health Plan (SSHP) or as established by Sevenson's CIH.

Additionally, visitor identification cards will be issued to visitors authorized to enter the project site.

Improperly identified personnel will be excluded from the site.

The requirement of personnel identification may be waived upon approval of the USACE.

VI. ENTRANCE CONTROL

Security will perform all of the following:

- Provide surveillance of all persons, equipment, and vehicles entering and leaving the site;
- Oblige each person to display proper identification;
- Require all personnel and visitors having access to the site to sign in and sign out, and maintain a log of all site access;
- Restrict vehicular access beyond the guardhouse to the mobilization area to
 authorized vehicles only. Restrict use of site-designated parking areas to vehicles of
 USACE, Sevenson, subcontractors, service personnel assigned to the site and actually
 on duty, and visitors approved by the USACE;
- Sevenson will accommodate and coordinate visits with local law enforcement agencies, including police, sheriff department, highway patrol, emergency medical care units, fire department, and utility emergency teams;
- Site visitors will not be permitted to enter active hazardous work areas (Exclusion Zone and Contamination Reduction Zone);
- Sevenson will maintain a list of persons authorized for site entry and submit a copy of the list to the USACE on request; and,
- Personal vehicles will not be authorized to enter the Exclusion Zone or Contamination Reduction Zone.

VII. UNIFORM REQUIREMENTS

Each Security Officer will wear a uniform that displays the name of the security firm.

These uniforms are to be complete, including hat, shirt, trousers, belt, and boots.

Uniforms will be pressed and boots shined. The officer will present a neat, professional appearance.

VIII. VISITOR CONTROL

All visitors must be approved by the USACE.

Security will provide initial screening of all site personnel and visitors require display of proper identification by each person, and bar personnel not properly identified from the project site.

Designated visitor parking will be provided for up to five vehicles.

All visitors will be required to read and sign an approved synopsis of the SSHP prior to entering the site.

Visitors will be escorted at all times, except USACE employees and representatives who may proceed without escorts. The USACE will be notified of all such visitors before allowing them on-site.

Parking areas will be regulated to ensure free entry and egress to and from the site.

IX. NON-PERMITTED PROCEDURES

Security personnel will not be permitted to direct the loading or unloading of site materials, or participate in any contract activity that will jeopardize, obstruct, weaken, or threaten site security, even on an intermittent or one-time basis.

Security personnel will, in general, monitor, authorize entry, and inspect all areas of the project on a continuing basis and will not serve any production work of the project.

Site security personnel will not be scheduled for, nor permitted to work, consecutive shifts.

The site will on no occasion be left unsecured. The site security officer will remain on duty until the next shift replacement arrives.

X. LIST OF PERSONNEL AUTHORIZED FOR SITE ENTRY

SEVENSON ENVIRONMENTAL SERVICES, INC.

- Michael A. Elia
- Richard A., Elia
- Al LaGreca
- Kim Lickfield
- Paul Hitcho
- Ken Paisley
- William Zambrana
- Perry Novak
- Pat Carr
- Eric Tschudi

USEPA/USA CE

- Diego Garcia
- Pat Seppi
- Eugene Urbanik
- Neal Kolb
- Patrick Nejand
- Fred Zorbas
- Ken Maas

LABORERS, OPERATORS, TRUCK DRIVERS, AND SAFETY STAFF TO BE NAMED AT A LATER DATE.

TBD

Comments Matrix – Spill Prevention and Control Plan (Transmittal No 01351-2) Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 – Remedial Design Contractor – Sevenson Environmental Services, Inc. Reviewer – ARCADIS-US, Inc.

		1	Reviewer – ARCADIS-US, Inc.	
Reviewer Comment No	Page /Para	Section	Comment	Response
1	4	Drummed Waste	Add appropriate procedures for drum and container opening, sampling, and shipping, as required in Specification Section 01351, Paragraph 1.17.	This item is for the collection of waste collected by Sevenson and to be disposed as drummed waste. Sampling procedures are included in the QAPP. Transportation of waste is included in the Waste Transportation and Disposal Plan. The Drummed Waste paragraph can be deleted in its entirety as no drummed wastes are anticipated for this project.
2	5	Equipment	Add absorbent boom to the list of equipment to be kept on Site at all times, since the <i>Spills into Waterways</i> Section of this submittal indicates their usage in the event of a spill in a waterway.	Absorbent boom added to the list.
3	6	Assess Hazard	Paragraph states Mr. Kim Lickfield will determine if spills are incidental, but Perry Novak is identified as the individual responsible for the SPC plan under Contractor Personnel. Please correct.	Name was changes to reflect that Perry Novak will determine if spills are incidental
4	NA	General	Specification Section 01351, Paragraph 1.17 requires that sufficient inspections and tests take place on a continual basis for spill prevention purposes. Please provide a checklist that will be utilized for routine inspections.	Documentation regarding activities, including spills is included on the Daily report generated by the Health and Safety Officer. Any incidents that occur are reported on this daily report. There is a Safe Plan of Action Check list that is prepared daily by the HSO and is included in the Health and Safety Plan.

Rev 1

Cornell Dubilier Superfund Site
OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

July 2012

I. PURPOSE

This Spill Prevention and Control (SPC) Plan has been prepared by Sevenson Environmental Services, Inc. to satisfy USACE's Specification Section 01351 contract requirements for the Cornell Dubilier Superfund Site. This is a site-specific SPC plan that establishes Sevenson's policy to prevent, respond to, and report spills or releases to the environment. This plan, as presented herein, will provide contingency measures for potential spills of bulked liquids, contaminated soils, and other solids handled on site. Sevenson's goal is to generate, transport, store, handle, and dispose of oil and hazardous substances in a manner that protects the environment and public health. The SPC plan will be updated as project work progresses or site activities change. An updated copy of this SPC plan will be maintained and implemented at the project site.

Sevenson personnel will respond to all on-site spill emergencies. It will be the waste haulers responsibility to respond to all off-site emergencies.

II. SITE INFORMATION

The project sites are located at several residential properties in the Borough of South Plainfield, New Jersey. The project consists of soil excavation, transportation and disposal of debris waste, and restoration with backfill, topsoil and sod. The project sites are residential properties within the vicinity of the Cornell Dubilier Electronics Superfund Site. All aboveground and underground utilities located within the project site boundaries will be identified prior to beginning work. Sevenson will conduct an environmental investigation during the mobilization phase of the project. Investigation work will consist of documenting existing site conditions and noting any potential sources that may require a spill response (i.e., wet wells, pits, etc.).

TOPOGRAPHY AND SURFACE WATER FLOW

POTENTIAL SPILL SOURCES

Potential spill sources at the site include materials and equipment brought on-site, pre-existing site contamination, and potential unknown site conditions.

Equipment and Materials Brought On-site

- Equipment staging and maintenance areas (fuel, lubricating oil, and hydraulic oil from drill rigs, backhoes, bulldozers, piling drivers, water trucks, pickup trucks, support truck equipment, lighting units, pumps, and generators);
- Fueling areas (gasoline and diesel);
- Hazardous material staging (containers of lubricants, fuels, and hydraulic oil); and
- Hazardous waste storage (drums of used oil filter, material used to clean and maintain equipment).

Pre-existing Site Conditions

Hazardous materials documented to be present at the site include the following:

- Metals in soils;
- PCB's in soils;

Unknown Conditions that may be encountered

- Abandoned USTs and underground pipelines that may exist at the sites.
- Contaminated soil (not identified in the project plans and specifications).

CONTRACTOR PERSONNEL

The Sevenson Environmental Services, Inc. designated person responsible for managing, implementing, and maintaining this SPC plan is Perry Novak. His designated alternative is William Zambrana. Project phone numbers are as follows:

- Sevenson Environmental Services, Inc. Corporate office (716) 284-0431
- Project site office: 908-769-5301
- Perry Novak, cellular 973-462-1155
- William Zambrana, cellular 973-518-0257

III. GENERAL

All response actions will comply with the site Safety and Health Plan. Temporary fuel (oil) storage tanks will be placed in a lined containment area of sufficient size and strength to contain the contents of the tank in the event of leakage if utilize. As an alternate, Sevenson may opt to utilize self "spill" containing fuel storage tanks. A fuel storage locker will also be utilized on site for the storage of small quantities of fuel (gas cans).

Emergency Contacts in the event of a spill:

- USEPA Spill Response (800) 424-8802
- NJDEP Spill Response (609) 292-7172
- Middle Sex County Hazmat (732) 727-6626
- NJ One Call (800) 272-1000

IV. PROJECT SITE DESCRIPTION

ITEMS BROUGHT ON SITE

Equipment staging and maintenance, fuel staging, hazardous material staging, and waste storage areas will occur at the sites. Any spills will be collected and placed within a sealed container(s). Types of containment include:

- Fuel oil;
- Spent fuel oil;
- Solvents;
- Grease and;
- Gasoline

V. MATERIAL HANDLING

BULKED LIQUIDS AND SOLIDS

Sevenson will ensure that all vehicles provided for the remedial work are in a good state of repair. The equipment will be operated in a safe manner to prevent spills during the handling of all bulked liquids and solids. Equipment (i.e., tankers, frac tanks, etc.) storing bulked liquids must be certified for that purpose and must be inspected to ensure that all valves and other access ports are secured to prevent leaks. All hoses, pumps, valves, and connections will also be inspected to ensure the unit is free of leaks. Haulage units (trucks, intermodals, roll off boxes, etc.) used for bulked-solid-handling will be inspected to ensure that their tailgates are secured and the loads are covered (tarped) to avoid spillage or spread of the solids or excavated material.

DRUMMED WASTE

The handling and transport of drummed waste will be, at all times, conducted in a controlled and safe manner which will minimize damage to drums, repacks, or

overpacks. If during transport or handling, leakage or spillage of waste occurs, the drums will immediately be placed within an overpack unit (overpack units will be provided on site). The spill will be cleaned up immediately and the incident will be logged.

EQUIPMENT

Sevenson will have the following equipment on-site to be used for any unexpected spills:

- Sand, clean fill, or other non-combustible absorbent;
- Several empty overpack drums, a dump truck or a 20-cubic yard (cy) roll-off container;
- · Shovels;
- Front end loader;
- High volume water pump;
- Water transfer hoses; and
- Wash water for decontaminating tools and equipment.
- Absorbent Boom

Hand tools used for spill response will generally be discarded with the waste material unless it is determined appropriate to decontaminate the tools. All contaminated materials, including solvents, cloth, soil and wood that cannot be decontaminated will be properly containerized, labeled, and disposed of as soon as possible.

VI. SPILL RESPONSE

Sevenson personnel will respond to all on-site spill emergencies. It will be the waste haulers responsibility to respond to all off-site emergencies.

If a spill occurs, Sevenson will notify the USACE immediately and take immediate measures to control and contain the spill within site boundaries.

Measures to be implemented are as follows:

ASSESS HAZARD

Sevenson will stop operations and Mr. Perry Novak will determine if the spill is incidental, which is defined as (1) spilled material that is known and definable and (2) Sevenson has the resources (trained personnel, equipment, and supplies) onsite to safely and effectively respond to the spill. If one or more of the criteria are not met, the spill is not *incidental* and direction will be given for evacuation of the area and the fire department (911) and emergency response contractor/team will be notified.

If the spill is incidental, Sevenson will assess the quantity of substance spilled and the extent of the affected area, and implement the following:

- Isolate hazardous areas and keep unnecessary people away;
- Prevent people from touching spilled materials;
- Stay upwind, keep out of low areas;
- Keep combustibles away from the spilled materials;
- Secure the area and obtain the appropriate spill response equipment and PPE;
- Use water sprays or foam suppressant to reduce vapors, as needed;
- Contain the spill area;
- Seal or stop the source of the spill by closing valves, providing containment,
 or deactivating pumps, as applicable; and
- Take samples for analysis to determine that the clean-up is adequate.

MITIGATING, REMOVING, AND DISPOSING OF SPILLED MATERIAL

Only OSHA-trained personnel will perform spill cleanup activities. The spill response contractor/team will be responsible for cleanup activities as a result of spills or leaks when Sevenson does not have the training, equipment, or materials to cleanup this particular spill.

SPILLS ONTO THE GROUND (SOIL):

- Clean up the spill immediately.
- Absorb liquid spills with sand, clean fill, or non-combustible absorbent materials.
- Employ control measures to prevent the diversion of extraneous water onto adjacent properties. This water will be diverted to existing storm water collection systems.
- Collect spilled material and place into drums labeled to identify contents.
- Collect absorbent and other material used to clean up the spill, label the container, and properly dispose of waste at an approved disposal facility.
- Notify the NJDEP.
- Decontaminate the affected area, equipment, and surfaces that have contacted the spilled material.
- Restore habitat, if necessary.

SPILLS INTO WATERWAYS:

- Notify the National Response Center and the State of New Jersey Emergency Management Division.
- Notify a spill response contractor, if necessary.

- Stop the source of the spill immediately.
- Shut down all equipment and ignition sources in the area.
- Deploy boom and absorbent to contain the spill.
- Clean-up-absorbent-and-waste-materials-and-dispose-of-at-an-approved-wastedisposal facility.
- Decontaminate the affected area, equipment and surfaces that have contacted the spilled material.

CONTAMINATED SOIL SPILLS

In the event that contaminated soil is spilled on-site, Sevenson will implement the following:

- The spill area will be secured.
- The contaminated material will be cleaned up and placed in a container/box.
- The surface area where the spill occurred will be surveyed for contamination.
- Once the area is deemed decontaminated, the area will be restored to its original condition.

DECONTAMINATION PROCEDURES:

Decontamination procedures may be required after cleanup to eliminate traces of the substance spilled or reduce it to an acceptable level as determined by the USACE. Complete cleanup may require removal of contaminated soils. Personnel decontamination will include showers and cleaning or disposing of protective clothing and equipment. All contaminated materials including solvents, cloth, soil, and wood that cannot be decontaminated will be removed and disposed of properly.

REPORT/NOTIFICATION

Sevenson will submit a spill report/notification to the USACE, which will include the following:

- Type of Release;
- Source of Release;
- Contents of Release;
- Quantity of Release;
- Time of Release;
- Contact list, in order;
- Injury Report;
- List of personnel involved; and
- Final disposal location.

VII. STORMWATER RUN-OFF RELEASES

Requirements for control of sediment in stormwater run-off will be performed in accordance with Specification Section 01356A and Sevenson's Soil Erosion and Sediment Control Plan. These requirements will include, but are not limited to, the following:

- Installation of a decontamination pad in accordance with the contract drawings, including collection of contaminated water;
- · Curtailing work to reduce the exposed surface in heavy rains; and,
- Controlling sediment that may be entrained by rainwater running off the site.

Comments Matrix – Staffing Plan (Transmittal No 01140-15)				
Cornell-Dubilier Electronics Superfund Site - Operable Unit 1 - Remedial Design				
Contractor – Sevenson Environmental Services, Inc.				
Reviewer - ARCADIS-US Inc				

Reviewer – ARCADIS-US, Inc.					
Reviewer	Page	Section	Comment	Response	
Comment	/Para				
No	ŀ				
1	8	Project	The last sentence of the plan indicates resumes for the key	Resumes have been included with the plan.	
		Organization	personnel involved are attached, but the attachment is		
		and Key	missing. Please include the referenced attachment.		
		Personnel	_		

Staffing Plan

Rev 1

Cornell Dubilier Superfund Site
OU 1 Property Remediation

South Plainfield, New Jersey

Submitted by:

Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, New York 14305

Revised July 2012

I. BASIS OF THE PLAN

Sevenson's Staffing Plan for the Cornell Dubilier Superfund Site (site) is based on the assumption that Sevenson has ultimate responsibility for project safety, quality control, execution, cost control, and performance. Sevenson will be responsible for all aspects of work, including maintaining site security; excavation, and transportation and disposal of contaminated soils, testing of soil, backfill and compaction of clean soils, and maintenance of construction equipment.

II. WORK EXPERIENCE

Kim W. Lickfield, Sevenson's Project Manager, will manage all project activities. Mr. Lickfield has over 30 years experience in construction work, including remedial action, demolition, and heavy highway projects. All project production and operation staff will report to Mr. Lickfield.

Sevenson's Site Health and Safety Officer, Eric Tschudi, will report to Sevenson's Safety and Health Manager, Dr. Paul Hitcho, PhD, CIH, who will provide off-site safety/occupational health support to the project. Mr. Tschudi has current American Red Cross First Aid, CPR, AED, and Blood borne Pathogens training, as well as several years of experience in the implementation and enforcement of site-specific health and safety plans. Ken Paisley will provide corporate-level regulatory support including chemical quality control, laboratory services, and off-site transport and disposal coordination.

Perry Novak will provide superintendence of field operations. Mr. Novak has over 15 years of experience in various capacities of project management, including superintendent.

William Zambrana will serve as Quality Control (QC)/Engineer reporting to the Corporate Project Manager. Mr. Zambrana has over 20 years of remedial project experience with Sevenson. Where necessary, he will add additional QC staff to ensure appropriate oversight and project quality.

The foundation of Sevenson's Corporate Safety and Health Program is that all employees (including subcontractors) will have "stop work" authority. Anyone in question as to whether work is being conducted safely is empowered and expected to stop the work, review the required safety practices, and institute corrective actions if necessary. All Sevenson staff possess current 40-hour and 8-hour OSHA HAZWOPER training per 29 CFR 1910.120(e).

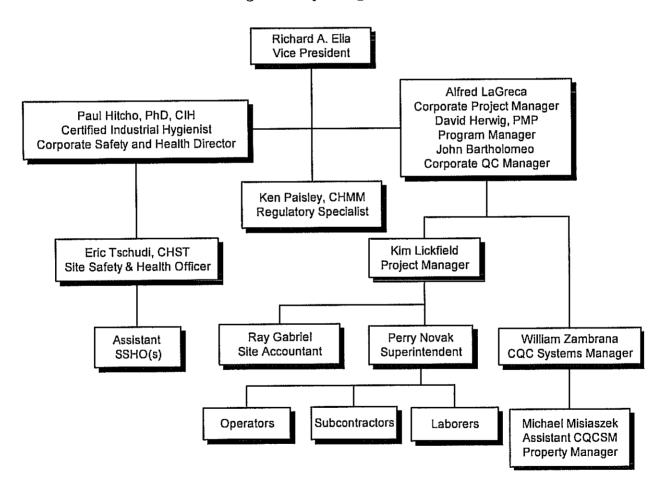
III. PROJECT ORGANIZATION AND KEY PERSONNEL

A. Project Organization

Sevenson's Project Organization is presented as Figure 1. Sevenson staff assigned to the site possesses a broad range of remedial action treatment system design, construction, and Operation and Maintenance experience.

1. Key Personnel - Home Office Support

Figure 1 Project Organization



Richard Elia - Executive Vice President

Mr. Elia has ultimate responsibility for the project's success. He will make available all the Sevenson resources required to ensure that the project is executed successfully. He will be kept informed of the project's progress and whether or not the contract is meeting its goals. Mr. Elia will resolve problems that cannot be resolved by the Corporate Project Manager and will periodically visit the site and be acquainted with personnel and procedures.

Paul Hitcho, Ph.D., CIH - Certified Industrial Hygienist

An AIBH-Certified Industrial Hygienist (CIH), Dr. Paul Hitcho, PhD, manages Sevenson's corporate safety program in-house. Dr. Hitcho will be responsible for the review and approval of the Site Safety, Health and Emergency Response Plan, and will also provide SSHO supervision; review all integrated air monitoring results and personnel physicals; and develop the air- monitoring program as required. He will conduct quarterly safety audits and inspections; observe the administration of this plan; and make necessary modifications to the program.

Regarding safety and occupational health, Sevenson will:

- Maintain overall responsibility to site safety.
- Be responsible for assigning Site Safety and Health Officer responsibilities.
- Ensure that all activities are carried out in compliance with the approved Site Safety and Health Plan.

Alfred LaGreca - Corporate Project Manager

As Corporate Project Manager, Mr. LaGreca has overall responsibility for the entire project, including safety, quality, operations, scope, resource allocation and balancing, and cost issues. In his program management role, he is responsible for the implementation of Sevenson's Corporate Quality Control Program at the site, and the support of the Quality Control Plan. He is responsible for the management and coordination of all aspects of the project with an emphasis on adhering to the objectives of the remedial activities.

Kenneth Paisley, CHMM - Regulatory Specialist

Mr. Paisley has over 17 years of experience in the chemistry and environmental fields. He is responsible for regulatory compliance matters on all Sevenson projects, including oversight of all field sampling and chemical data acquisition plans and correspondence with off-site laboratories. Mr. Paisley will review laboratory reports with the selected lab in order to ensure compliance with project specifications and all required protocols. He will coordinate off-site waste removal, including transport, disposal, manifests, waste profiles, regulatory compliance, and disposal requirements.

2. Field Personnel

Kim W. Lickfield - Project Manager

Kim W. Lickfield, Sevenson's Project Manager, will be the contact person with whom the USACE will deal with on a daily basis under this contract. Mr. Lickfield will ensure that:

- Qualified Sevenson and subcontractor resources are assigned to the project and balanced to ensure jobs are aligned with project needs.
- The Site is maintained as secure in accordance with the Site Security Plan.
- All tasks are carried out safely and in compliance with the project specifications.

Sevenson field personnel can rely on home office support to ensure safe, timely, and cost-effective field performance. Mr. Lickfield reports directly to Mr. LaGreca, Sevenson's Corporate Project Manager, who reports directly to Sevenson's Vice President and Officer-In-Charge, Laurence Elia. When problems arise that cannot easily be rectified in the field, Mr. LaGreca and Mr. Elia become, and remain, personally involved until each problem is resolved and appropriate corrective measures are implemented. Mr. Lickfield will typically communicate with Mr. LaGreca at least daily on the progress of the job.

Mr. LaGreca and Mr. Elia will be present on the job site as required to ensure that

appropriate resources are being applied to the project, and that the work is progressing on schedule.

Mr. Lickfield will oversee all aspects of work under this contract for the remediation activities at the Cornell Dubilier Superfund Site. Mr. Lickfield's duties and responsibilities include:

- Employment and management of site personnel to maximize productivity and minimize cost.
- Use of predictive management to track, forecast, and report cost against baseline budget(s).
- · Management and maintenance of construction equipment.
- · Lead periodic Progress and Management Meetings.
- Quality assurance of field and process sampling activities to ensure compliance with the approved SAP and project specifications, including sampling excavation bottoms and sidewalls; treatment system processes; and clean (processed) soils.
- Oversight of all field excavation, backfill, waste transport and disposal coordination.
- Maintenance of safety, occupational health, and environmental compliance in accordance with all project-planning documents.
- Maintenance of project As-Built drawings.
- Maintenance of site security.
- Coordination and management of subcontractors in a productive mode.
- Management of the submittal process to meet contract requirements.
- Recognition and motivation of all workers at the site.

William Zambrana - CQC Systems Manager/Engineer

William Zambrana, Sevenson's Contractor Quality Control (CQC) Systems

Manager/Engineer, will assist the Project Manager in the performance of daily

management duties of the project. Along with the Project Manager, Mr. Zambrana

will ensure that:

- Qualified Sevenson and subcontractor resources are assigned to the project and balanced to ensure jobs are aligned with project needs.
- The site is maintained as secure in accordance with the Site Security Plan.
- All tasks are carried out safely and in compliance with the project specifications.

Mr. Zambrana's duties and responsibilities include assisting the Project Manager in the following duties:

- Employment and management of Site personnel to maximize productivity and minimize cost.
- Use of predictive management to track, forecast, and report cost against baseline budget(s).
- Establishment and maintenance of the project schedule.
- Management and maintenance of construction equipment.
- Manage periodic Progress and Management Meetings.
- Quality assurance of field and process sampling activities to ensure compliance with the approved SAP and project specifications, including sampling excavation bottoms and sidewalls.
- · Oversight of all field activities.
- Maintenance of safety, occupational health, and environmental compliance in accordance with all project planning documents.
- Maintenance of project As-Built drawings.
- Maintenance of site security.
- Coordination and management of subcontractors in a productive mode.
- Management of the submittal process to meet contract requirements.
- Recognition and motivation of all workers at the site.

Eric Tschudi- Site Safety and Health Officer

As Site Safety and Health Officer, Mr. Tschudi will be responsible for the implementation of the Health and Safety Plan, including required safety inspections, initial and visitor safety briefings; review of all air monitoring data; and submittal of

reports on safety and health-related activities.

At the start of intrusive excavation activities, Sevenson's CIH (Paul Hitcho) will be onsite to establish appropriate procedures and protocols relative to air monitoring, dust and noise control, and proper worker protection issues.

Perry Novak - Superintendent

As Superintendent, Mr. Novak will be responsible for the supervision of all field construction activities (demolition, excavation, hauling, staging, backfilling, compacting) including craft labor (equipment operators, truck drivers, and laborers) and technical staff (surveyors). He will provide direction to subcontractor and Sevenson workers on a daily basis and manage the site's waste transport and disposal activities. Mr. Novak is also responsible for maintenance of Sevenson-owned civil construction equipment. He will coordinate and manage subcontractors under his direction in a productive mode, and manage labor overtime.

Resumes for the key personnel involved in this project are attached.

Education:

- PhD, Biology, University of Notre Dame, 1970
- BA, Biology, St. Vincent College, 1966

Certifications:

- Quality Control Management of Contractor's Training, March 2000
- Board-Certified-Industrial
 Hygienist, American Board of Industrial Hygiene
- National Science Foundation, Predoctoral Trainee, University of Notre Dame
 National Institutes of Health Postdoctoral Fellow, University of Massachusetts
- Certificate of Appreciation, US Department of Labor

Role and Responsibility:

- Responsible for development, implementation, reviews, and evaluation of the project-specific worker health and safety plans.
- Responsible for overseeing the medical monitoring of all field employees.
- Performs periodic audits and safety inspections at the sites.
- Supervises a staff of 42 Site Health and Safety Officers.
- Oversees the health and safety aspects of all Sevenson's projects.

Paul J. Hitcho, PhD

Vice President, Director of Health and Safety

Dr. Hitcho brings a rich professional background to Sevenson Environmental Services, Inc. He has conducted extensive research as a postdoctoral Fellow at the University of Massachusetts and taught at the university level. He was a field industrial hygienist for the Occupational Safety and Health Administration for 3 years, and later served as supervisor of industrial hydiene for the Pittsburgh Area Office. While serving as the head of the Industrial Hygiene Department for the United Steelworkers of America, Dr. Hitcho acted as liaison between the union and the coal carbonization (coking) industry and related chemical industries. He is recognized as a world authority in this field by the International Agency for Research on Cancer (IARC). The IARC monographs developed while he was an active participant are cited by OSHA today in that agency's hazardous communications standard 29 CFR 1910.120. Dr. Hitcho also interfaced with pesticide and herbicide manufacturers to conduct occupational health studies and to develop hazard analyses for some of the processes in this industry. Since 1986, Dr. Hitcho has served as the Director of Occupational Health and Safety for Sevenson.

Past Project Experience

- Teaching Assistant: University of Notre Dame 1966-1968
- National Science Foundation Trainee: University of Notre Dame 1968 – 1970
- Post Doctoral Research Fellow: University of Notre Dame 1970 – 1971
- National Institute of Health Post Doctoral Fellow: University of Massachusetts, Amherst, MA 1971 – 1974
- Field and Supervisory Industrial Hygienist, OSHA, Pittsburgh Sun Office 1974 – 1979
- Technician and Assistant Department Head Health and Safety: United Steelworkers of America 1979 – 1986
- Director of Occupational Health and Safety and Vice President: Sevenson Environmental Services, Inc., Niagara Falls, NY: 1986 to Present



Education:

 BS, Civil Engineering SUNY at Buffalo, 1973

Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER Refresher
- · Red Cross CPR and First Aid
- USACE Construction Quality Management for Contractors Training

Role and Responsibility:

- Responsible for delivery of completed project in compliance with plans and specifications.
- Communicates daily with the project team to review progress.
- Makes available personnel and equipment resources necessary to execute scope of work.
- Facilitates revision to work among owner, engineer and Sevenson.

Experience and Expertise:

- Remediation skills developed out of heavy, highway and civil construction project experience.
- Understands CERCLA, RCRA, TSCA and additional regulatory requirements.
- Firm Fixed Price, Cost Reimbursable, Fixed Fee, Guaranteed Maximum Price Contract Experience
- Union and Open Shop Labor
- Dredging, Dewatering and Filtrate Treatment
- · Excavation and Earthwork
- Steel Sheeting Systems
- Recovery and Treatment Systems
- Solidification/Stabilization
- Constructability Reviews

Alfred R. LaGreca

Vice President / Corporate Project Manager

Past Project Experience

Mr. LaGreca has more than 30 years experience in heavy civil and general building construction. His experience includes the direct development and oversight of more than \$400 million in remediation tasks, including \$200 million cost-reimbursable contracts for commercial and federal clients. He has more than 24 years experience managing the cleanup and restoration of NPL sites, including 15 years managing USACE contracts. Mr. LaGreca is responsible for the coordination of all field activities including resource allocation, cost estimates, schedules, and engineering and construction management. He also negotiates and interfaces with clients and regulators.

Mr. LaGreca was instrumental in managing the evolution and development of Sevenson's MIS, ensuring the ability of the systems to gather appropriate data for daily cost review, Earned Valued Analysis, and other variance analyses. He is familiar with the development of estimates in MCACES and Sevenson's proprietary spreadsheet methods. He has overseen and approved the estimating efforts on all of Sevenson's Federal Contracts with the USACE, USAF, and the DOE. He has more than 30 years experience on private cost reimbursable contracts (CR) and five years CR contracts experience with USACE. His project experience includes:

USACE Baltimore District, MARC; Spring Valley, Washington DC: Responsible for the successful execution and management of tasks under this response action contract. Ensures that all operations conducted under this contract are executed in accordance with all environmental statutes as appropriate. Oversees the development of work plans, cost estimates, and schedules in compliance with USACE requirements for all projects under the Baltimore MARC.

Specific task order included:

Spring Valley TCRA Arsenic Contaminated Properties, Spring Valley, Washington DC: Evaluated vendor and subcontractor bids for labor and materials to meet the objectives. Oversaw the complete removal of arsenic contaminated soil on 25 residential properties under USACE Time Critical Removal Action regulations; a total of 4750 cy of contaminated soil was removed. Directed complete restorations of the disturbed sites, including backfill and topsoil placement, sod placement and care, replacement of driveways and sidewalks, and installation of other displaced landscape features. Implemented Construction Support Plans in support of two OE/CWM investigations that had potential of OE/CWM discovery during the construction activities. Participated in extensive community relations activities in support of the USACE, coordinating complex schedules between the USACE, residential homeowners, and subcontractors, including interfacing and negotiations



with residents.

W.R. Grace Remediation Project, Chattanooga, TN: Worked with project team to execute this design/build GMP and the decontamination, partial demolition, and rehabilitation of building sections contaminated with low-level radioactivity. Provided technical review of remediation design and project submittals. Work performed has included a Phase I study investigating the impact of low-level radioactive waste, including decontamination and demolition.

Manager, US Army Corps of Engineers, Kansas City District, Region II PRACs: Responsible for the successful execution of task orders associated with four consecutive PRACs with the USACE, Kansas City District. Directs the project manager and teams to fully execute all work activities at various sites throughout Region II. Routinely visits sites to monitor quality, safety and performance.

Specific task orders included:

Vineland Chemical Company Superfund Site, Vineland, NJ: Worked in conjunction with on-site project management team to ensure all contract requirements were met. Reviewed the design and output results of soil washing treatment plant. Participated in stakeholder meetings and TO negotiations. Contributed to, and reviewed bids and cost estimates for materials and equipment for new soil washing treatment plant. Directed design and construction activities to remediate 200,000 cy of soil by implementing innovative soil washing technology.

Federal Creosote Superfund Site, Manville, NJ: Coordinates project team to successfully remediate VOC's and eliminate odor problems that exist at the former creosote manufacturing facility. Instrumental in the development of estimates, schedules, resource selection and client relations. Phase one of this two-phase task order was completed three months ahead of schedule and \$3 million under budget. Oversaw cost development for this cost reimbursable remediation project. Reviewed development of estimates, schedules, and resource selection and identification. Worked with project team to develop major milestones and project schedule. Provided staffing recommendations to support field activities and subcontractor personnel requirements. All four task orders were under budget and ahead of schedule.

Manager, USACE Kansas City, Region II LTRA, Long Term O&M Contract: Actively participated in TO development and day-to-day performance, including oversight of local, state, and federal environmental regulatory requirements. Managed six cost-reimbursable and firm fixed price contracts for O&M of three groundwater treatment plants at Superfund sites. The design capacity of the largest plant is 1,200 gpm. Over 20 Sevenson employees were assigned through this contract and reported to him.

Projects included:

Higgins Farm Superfund Site, Franklin Township, NJ: Ensures accurate O&M of the GMS in a safe and environmentally friendly manner. Reviews reports to confirm the treatment of contaminated influent is restoring groundwater quality to meet applicable Federal and state safe drinking water standards and effluent discharge requirements as set by SPDES authorization to discharge. Oversees the monitoring of wetlands and flood plain areas adjacent to the Higgins Farm site for adverse effects related to GMS operation.

USACE Buffalo PRAC, Fort Benjamin Harrison; Lake Ontario Ordnance Works; Niagara Falls Storage Site. Oversees the development of cost estimation and schedules working with the chief estimator and project management. Involved with planning labor, equipment, and materials in conjunction with the project management team. Key in daily operations and managing cost variances, scheduling, tasks, and personnel issues. Participates in progress meetings addressing tasks and client's issues.

Projects include:

Niagara Falls Storage Site, Niagara Falls, NY, September 2000 to September 2003, \$2 million. Sevenson removed all ACM and lead-based paint material; demolished the building (excluding the slab and spread footer); packaged, loaded, transported, and disposed of all non-radioactive contaminated ACM, lead, and building demolition debris to a licensed disposal facility; and performed pre and post construction radiological surveys of all work areas, including 15 meters outside the actual work areas to ensure that work activities did not radiologically contaminate the work areas. All radioactive residual material was identified, segregated, packaged, and transported to the on-site designated storage area.

Education:

AAS, Civil Technology
 Erie Community College, 1975

Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER Refresher

Role and Responsibility:

- Responsible for delivery of completed project in compliance with plans and specifications.
- Attends all scheduled progress meetings.
- Meets daily with the project team to review planned activities.
- Develops and maintains all project deliverables, submittals, schedule and reports.
- Develops and manages cost control and accounting, procurement and expediting material delivery, inspection, and quality control functions.

Experience and Expertise:

- Remediation skills developed out of heavy, highway and civil construction project experience.
- Understands CERCLA, RCRA, TSCA and additional regulatory requirements.
- Firm Fixed Price, Cost Reimbursable, Fixed Fee, Guaranteed Maximum Price Contract Experience
- Union and Open Shop Labor
- Dredging, Dewatering and Filtrate Treatment
- Excavation and Earthwork
- Steel Sheeting Systems
- Recovery and Treatment Systems
- Solidification/Stabilization
- Constructability Reviews

Kim Lickfield

Project Manager

Past Project Experience

Cornell Dubilier Superfund Site – OU-2, Phase II, South Plainfield, NJ: Project Manager. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations greater than 500 ppm and additional contaminated soils that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration.

Cornell Dubilier Superfund Site – OU-2, Phase I, South Plainfield, NJ: Project Manager for the fixed-price contract for the demolition of the current industrial park. Work tasks included the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.

Sharkey Landfill, Morris County, NJ: Project Manager for the construction of two (2) 25 acre multi-layer landfill cap systems. Work includes extensive earthwork; installation of geosynthetic and HDPE liners; placement of select fill and topsoil; installation of rip rap swales.

US Radium Superfund Site, Essex County, NJ: Project Manager for the excavation, transport, and disposal of low-level radium-contaminated soils and debris from a residential area. Also for the demolition, transportation and disposal of debris and restoration of homes and landscape.

Clevite Corporation Site Remediation, Cleveland, OH: Project Manager for site characterization of former facility used to manufacturer nuclear fuels. Building remediation for decommissioning under NRC Guidelines for unrestricted use.

Decontamination and Demolition Services, 95 Ames Street Site, Rochester, NY: Project Manager for the decontamination and demolition of a 10 acre industrial facility. Demolition debris and wastes generated on the project were characterized, transported, and disposed of at permitted facilities.





Eastman Kodak Co., Hawkeye Gorge Site, Rochester, NY: Project Manager for gorge rock stabilization project. Rock anchor and shotcrete installation.

Eastman Kodak Co., Hawkeye Gorge Site, Rochester, NY: Project Manager for the excavation, transport, and disposal of low-level thorium-contaminated soils and debris from a recreational area.

Montclair Radium Superfund Site, Montclair, NJ: Project Manager for the excavation, transport, and disposal of low-level radium-contaminated soils and debris from a residential area. Also for the demolition, transportation and disposal of houses and restoration of homes and landscape.

Pine and Tuscarora Remediation, Niagara Falls, NY: Project Manager for the construction of a new creek channel, installation of an HDPE liner and clay cap, and construction of a slurry wall.

Black and Bergholtz Creek Remediation and Landfill Construction, Love Canal (NYSDEC), Niagara Falls, NY: Project Manager for extensive creek remediation; construction of a secure landfill and drum storage building; transfer of 2,000 drums into the storage facility; and closure of the landfill.

Niagara Recycling, Niagara Falls, NY: QC Manager for the installation of a leachate collection system and runoff diversion channel, and construction of a sanitary landfill cap.

D'Imperio Property Superfund Site, Hamilton, NJ: Project Manager for the excavation, characterization, transport, and offsite disposal of bulk and drummed wastes.

Lake Ontario Ordnance Works (USDOE), Lewiston, NY: QC Manager for the excavation, stockpiling, and moisture-conditioning of low-level radioactive soil; construction of retention ponds and a residual dewatering system; and installation of an interim clay cap over stockpiled materials.

Krysowaty Farm Superfund Site, Hillsborough, NJ: Project Manager for the excavation, characterization, transport, and disposal of contaminated soils and buried drums.

Wyoming County Correctional Facility, Attica, NY: QC Manager for the construction of a 500-bed medium-security correctional facility.



Education:

 A.S., Radiation Health Physics, Central Florida Community College, Ocala, FL

Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER Refresher

Role and Responsibility:

- Support and review through recording, processing, and tracking status of submittals.
- Maintain communications with engineering oversight to ensure proper execution of procedures, specifications, and standards.
- Assist project management in duties relating to project correspondence, specifications and drawing interpretations and work history.
- Review material quantities, procedural submittals, and documentation.
- Create, update, and maintain computer log of various construction management documents.
- Attend construction progress meetings.
- Formulate status reports and agenda, supply necessary logs and documentation, record and prepare minutes for distribution.
- Support project management through preparation of maintaining construction schedules.
- Procurement of equipment and materials.
- Coordination of subcontractors.
- Daily Safety Logs and QA/QC reports.

William Zambrana

Quality Control Manager

Past Project Experience

Cornell Dubilier Superfund Site, South Plainfield, NJ: QA/AC Manager for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.

Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: QA/QC Manager for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging, and 590 if of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration.

U.S. Radium Superfund Project, Orange, NJ: SSHO. Soil excavation with an extensive air monitoring and site control program. Level C Protection worn.

Montclair/West Orange/Glen Ridge Radium Superfund Site, Montclair, NJ: SSHO. Soil excavation with extensive air monitoring and site control program. Level C Protection worn.

Austin Avenue Superfund Site, Lansdowne, PA: SSHO. Soil excavation, demolition and new construction. Level C Protection worn.

Clevite, Cleveland, OH: SSHO. Building decontamination and rehabilitation. Level C Protection worn.

Whitmoyer Laboratories Superfund Site, Myerstown, PA: SSHO. Hazardous material excavation and transportation. Level B Protection worn.

Cherry Island, DE: SSHO. Hazardous material pipe/vessel decontamination. Level C Protection worn.



Certifications:

- OSHA 40 Hour HAZWOPER Training
- OSHA 8 Hour HAZWOPER Refresher
- Excavation and Trenching Competent Person Course

Role and Responsibility:

- Responsible to implement the construction-schedule-working-inconjunction with the project manager.
- Supervise and oversee all field construction activity.
- Determines equipment needs.
- Delivery of completed project in compliance with plans and specifications.

Experience and Expertise:

- Remediation skills developed over 12 years of remedial construction project experience.
- Understands CERCLA, RCRA, TSCA and additional regulatory requirements.
- Firm Fixed Price, Cost Reimbursable, Fixed Fee, Guaranteed Maximum Price Contract Experience
- Union and Open Shop Labor
- Dredging, Dewatering and Filtrate Treatment
- Excavation and Earthwork
- Steel Sheeting Systems
- Recovery and Treatment Systems
- Solidification/Stabilization
- Constructability Reviews

Perry D. Novak

Project Superintendent

Past Project Experience

Cornell-Dubilier Superfund Site –OU2, South Plainfield, NJ: Superintendent. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations greater than 500 ppm and additional contaminated soils that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration.

Metaltec/Aerosytems Superfund Site, Franklin, NJ: Superintendent for the construction, startup, and operations and maintenance of a permanent Groundwater Treatment Plant. The GWTP is sized at 150 GPM. Additional work tasks include: construction of a permanent treatment building; installation of an extraction system; treated water discharge system; and in-situ chemical oxidation system.

Cornell-Dubilier Superfund Site, South Plainfield, NJ: Superintendent for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site.

Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: Superintendent for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging, and 590 if of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration.

Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Superintendent for the excavation, characterization, transportation and disposal of 30,000 cy of creosote - contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration.



Federal Creosote Superfund Site, WAD-2, Claremont, NJ: Superintendent for this task order issued under PRAC on a cost plus fixed fee contract to perform test pit excavation, characterization of soil samples, and odor control studies.

U.S. Radium Co. Superfund Site (4 Contracts), Orange, NJ: Assistant Superintendent for this CERCLA site requiring the partial demolition, rehabilitation, and restoration (basements, garages, porches, sidewalks, and plantings) at 130 residential properties contaminated from radium. The original processing facility and all appurtances will also be demolished. Material volume for transportation and offsite disposal is estimated at 65,000 cyds.

Montclair Radium Site (7 Contracts), Montclair, NJ: Assistant Superintendent for the remediation of a residential area contaminated by a former radium-processing facility. Project involved demolition of residences, characterization of materials for offsite disposal, excavation and transport of radium-contaminated soils to a secure disposal facility, and site restoration.

Certifications:

- USEPA Region IV Oversight Training
- NRC RAD Worker I and II Certification
- OSHA 40 Hour Training/OSHA 8 Hour Refresher
- CHST Construction Health and Safety Technician Certificate Number C2764
- First Aid Training/CPR

Role and Responsibility:

- Responsible for implementation of the project-specific worker health and safety plans.
- Responsible for overseeing the medical monitoring of projectspecific field employees.
- Performs audits and safety inspections at the sites.
- Oversees the health and safety aspects on assigned project.
- Conducts informational meetings.
- Repairs and maintains field instruments.
- Manages air monitoring and sampling programs.
- Evaluates analytical data.

Experience and Expertise:

 Implemented and enforced sitespecific plans on a variety of remedial action projects involving: excavation and earthwork: innovative and traditional steel sheeting systems; sediment remediation: temporary and mobile water treatment systems; sludge solidification and soils stabilization: chemical treatment/heavy metals fixation: slurry wall and trench construction; collection, recovery and treatment systems construction; facilities decontamination and demolition: and low level radiation remediation.

Eric Tschudi

Onsite Health and Safety Officer/Radiological Technician

Past Project Experience

Cornell-Dubilier Superfund Site –OU2, South Plainfield, NJ: Health and Safety Officer. Operable Unit 2 addresses the remedial action of contaminated facility site soils and buildings. The scope of work requires the excavation of over 100,000 cubic yards of PCB contaminated soil at concentrations-greater-than-500-ppm-and-additional-contaminated-soils-that exceed New Jersey's IGWSC criteria for contaminants other than PCBs. Excavated soil will be treated by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils. Contaminated soil and debris, including capacitors, will be transported offsite for disposal. Installation of a multi-layer cap and engineering controls. Property restoration. Level C protection.

Cornell-Dubilier Superfund Site, South Plainfield, NJ: Health and Safety Officer for the fixed-price contract for the demolition of the current industrial park. Work tasks include the demolition and environmental decommissioning of 18 industrial buildings; excavation, characterization, transportation, and off-site disposal of both PCB contaminated soils and all debris generated from demolition operations; and rough grading the site upon completion of scheduled work. Extensive safety procedures are in place to protect the health of residents in and near the site. Level C protection.

Federal Creosote Superfund Site, Lagoon A, Phase II, Manville, NJ: Health and Safety Officer for the excavation, characterization, transportation and disposal of 69,000 cy of creosote contaminated soils. 770 linear feet of soldier pile and lagging, and 590 lf of sheet pile installed as protective shoring for deep excavation (35' depths). Extraction well system installed to aid site dewatering; and installation and O+M of a portable WWTP. Odor control measures implemented. Extensive site restoration. Level C protection.

Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Health and Safety Officer for the excavation, characterization, transportation and disposal of 30,000 cy of creosote - contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration. Level C protection.



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U.S. Radium Co. Superfund Site (4 Contracts), Orange, NJ: Health and Safety Officer for this CERCLA site requiring the partial demolition, rehabilitation, and restoration (basements, garages, porches, sidewalks, and plantings) at 130 residential properties contaminated from radium. The original processing facility and all appurtances will also be demolished. Material volume for transportation and offsite disposal is estimated at 65,000 cyds. Level C protection.

Montclair Radium Site (7 Contracts), Montclair, NJ: Health and Safety Officer for the remediation of a residential area contaminated by a former radium-processing facility. Project involved demolition of residences, characterization of materials for offsite disposal, excavation and transport of radium-contaminated soils to a secure disposal facility, and site restoration. Level C protection.

Education:

 BS, Accounting Thomas Edison State College, 2001

Certifications:

- Zenger Miller Training Systems Front Line Leadership
- · First Aid, CPR

Role and Responsibility:

- He has over 20 years experience in financial cost accounting, inventory control and financial report preparation.
- Responsible for the day to day operation of the cost accounting system.
- Manages/prepares all time sheets; invoices, materials purchases for submission to the U.S. Army Corps of Engineers for cost reimbursement.
- Monitors/manages project budget and prepares cost reimbursable invoices for payment as well as in-house weekly and monthly financial reports.

Raymond Gabriel

Cost Control Accountant

Past Project Experience

Metaltec/Aerosytems Superfund Site, Franklin, NJ: Cost Accountant for the construction, startup, and operations and maintenance of a permanent Groundwater Treatment Plant. The GWTP is sized at 150 GPM. Additional work tasks include: construction of a permanent treatment building; installation of an extraction system; treated water discharge system; and in-situ chemical oxidation system.

Federal Creosote Superfund Site, Lagoon B, Phase I, Manville, NJ: Cost Accountant for the for the excavation, characterization, transportation and disposal of 30,000 cy of creosote - contaminated soils. 625 linear feet of lagging, soldier and sheet pile installed as protective shoring for deep excavation (25' depths). Installation, O+M of a portable WWTP. Well point system installation to aid site dewatering. Odor control measures implemented. Extensive site restoration.

Previous Experience:

Celotex Corporation, Dayton, NJ: (20 Years) District Center Manager. Controlled a \$2 million operating inventory for a production facility with annual sales of \$50 million. Maintained accurate perpetual finished goods inventory on PC and network based systems. Interpreted. compiled, and consolidated accounting data and furnished financial, cost, and inventory information to senior management. Created and implemented procedures that achieved 99% accuracy in shipping and customer invoicing. Identified logistical problems within the manufacturing and warehouse facilities and initiated corrective action that resulted in reduced operating costs. Developed and maintained standard cost files for raw materials, brokerage items, and finished goods. Analyzed raw material inventories on a periodic basis to assess usage. Generated tactical inventory plans and operating budgets based on projected sales forecasts. Negotiated freight rates with truck and rail carriers to obtain lowest possible delivered costs. scheduled raw materials and brokerage inventory as required to meet production schedule. Increased productivity of the shipping department by 20% through reorganizing the warehouse and initiating new procedures.



Education:

 BS, Biology, Bloomsburg University, 1988

Certifications:

- Certified Hazardous Materials Manager (CHMM), Master Level Certificate
- USACE Wetland Delineation and Management Training (Certificate #2279)
- 40-Hour and 8-Hour OSHA Hazardous Waste Site Training per 29 CFR 1910.120
- Radiation Worker I and II Certification
- Cargo Security
 Awareness/Planning Training per 49 CFR 172.704(a)
- HM-181/POPS Training / DOT Training Certification
- US Army Corps of Engineers Construction Quality
 Management Certification
- Member, Air and Waste Management Association
- Past President, Academy of Certified Hazardous
- Materials, Managers, Western New York Chapter

Role and Responsibility:

- Responsible for regulatory compliance matters on all Sevenson projects.
- Provides support services to project management on technical issues pertinent to proper waste handling techniques and develops and manages waste characterization plans consisting of sampling protocol, analytical requirements, and final waste disposition.
- Sources and evaluates all analytical, transportation, and disposal subcontractors.

Kenneth O. Paisley, CHMM

Director of Technical Affairs/Regulatory Compliance Specialist

Past Project Experience

Welsbach/GGM Superfund Site (USEPA Region II), Gloucester City, NJ: Technical Affairs Manager for the excavation, removal transport and disposal of thorium and radium tailings – contaminated soils and debris from former industrial properties and 54 residential areas. Excavated soils and debris were transferred to a central Rail Tranship Facility (RTF) for loading into rail gondola cars. Materials managed at the site included low-level radioactive (LLRW), pre-1978 11(e)2, hazardous (RCRA) and mixed wastes (LLMW). Arranged for and coordinated the shipment of all waste to an offsite permitted non-RCRA hazardous, and radioactive waste landfills.

Rattlesnake Creek FUSRAP Site (USACE – Buffalo District), North Tonawanda, NY: Technical Affairs Manager for the excavation, removal transport and disposal of 53,000 tons of Pre-1978 11(e)2 contaminated soils, debris and buried containers of uranium contaminated ores resulting from historic operations of the Manhattan Engineer District. All wastes were consolidated and loaded into rail gondola cars at an onsite rail loading area for transport and disposal. Duties include oversight of the sampling, analysis, and classification of all site wastes. Arranged for and coordinated the shipment of all waste to an offsite permitted landfill.

Montclair/West Orange and Glen Ridge Radium Sites (USEPA/USACE), NJ: Technical Affairs Manager for excavation, removal and transport of wastes from numerous residential and several industrial properties throughout the site areas contaminated with the byproducts of a radium processing facility. Waste were loaded into intermodal boxes and transported to a rail loading facility for shipment for offsite disposal.

Cumberland Bay Site (NYS Superfund), Plattsburgh, NY: Technical Affairs Manager for the dredging, dewatering, treatment, and disposal of approximately 90,000 cubic yards of PCB sludges from a 34 acre area of Lake Champlain. In addition, 20,000 cubic yards of shoreline were excavated for disposal. Duties included the placement, staffing and coordination of an on-site laboratory to perform immunoassay testing to determine PCB concentrations in waste prior to off-site disposal. Planned and coordinated all other site analytical testing including the placement of real-time monitors to determine Total Suspended Solids (TSS) content outside of sheet-piled areas and at water discharges. Arranged for and coordinated the shipment of all site waste to either non-hazardous or TSCA landfills, as applicable.



Purolator Products, Inc. Elmira, NY: Technical Affairs Manager for the excavation and disposal of 12,000 tons of RCRA hazardous soils and solids and 21,000 tons of non-RCRA hazardous soils from a currently operating automotive supply manufacturer. Prepared and supervised implementation of an insitu sampling program to determine waste classification. Coordinated transportation and disposal via landfilling, chemical oxidation, and incineration. Supervised the operation and permit compliance of a 50,000 gallon batch water treatment plant.

Rockwell International, Russelville, KY: Technical Affairs Manager for the excavation and disposal of 80,000 tons of non-RCRA hazardous sediments and 21,000 tons of PCB sediments from the dredging and removal of approximately 1.5 miles of streambank. Coordinated with the owner's on-site Engineer to conduct a pre-excavation and post-excavation sampling to determine the depth and lateral extent of dredging/excavation activities. Supervised the operation and permit compliance of a continuous discharge water treatment plant at the site.

Carter Industrial Site, Detroit, MI: Technical Affairs Manager for the excavation and off-site disposal of 35,000 tons of PCB contaminated soils and debris, 20,000 tons of non RCRA hazardous solids and approximately 200 drums and cylinders. Duties included development and implementation of a pre-excavation and post-excavation soil sampling plan as well as a drum characterization and sampling plan. Also coordinated the on-site treatment, delisting, and verification sampling of 5,000 tons of lead contaminated soil. Arranged for and coordinated the off-site disposal (landfill) of all site wastes at the appropriately permitted landfills.

Taylor Instruments Site, Rochester, NY: Technical Affairs Manager for the excavation and off-site disposal of 43,000 tons of non hazardous, mercury and solvent contaminated soils and debris from the demolition and removal of a former mercury instrument manufacturing facility. Coordinated the sampling and off-site disposal of all site wastes to the appropriate (landfill, stabilization, chemical, treatment and mercury recycling) facility. Large quantities of free mercury and soils with mercury levels exceeding the High Mercury Land Ban Subcategory necessitated special handling and disposal requirements.

Commercial Oil Site, Oregon, OH: Technical Affairs Manager for the characterization, consolidation and off-site disposal of the contents of 30 bulk oil storage at this former waste oil recovery facility. Coordinated the sampling and analysis of the various phases and contents of all tanks at the site. Waste materials were consolidated based on their characteristics and compatibilities for off-site disposal (fuels blending/recovery, chemical treatment, and incineration).

Barker Chemical Site (NYS Superfund), Sodus, NY: Technical Affairs Manager for the excavation and offsite disposal of pesticide-contaminated soils, sediments, and debris. Duties included developing and coordinating pre-excavation (to establish excavation limits) and post-excavation (to verify completion) sampling plans. Arranged for and coordinated the transportation and disposal (through incineration, chemical oxidation treatment, and macroencapsulation) of 4,000 tons of contaminated soil and building demolition debris.

Summit National Superfund Site (USEPA Region V), Deerfield, OH: Technical Affairs Manager for the sampling, characterization, analysis, and disposal of approximately 500 drums of material and the contents of five underground storage tanks.

Metaltec/Aerosystems Site (USEPA Region II), Franklin, NJ: Technical Affairs Manager for the onsite thermal treatment of approximately 11,000 tons of hazardous soils. Coordinated the post-treatment sampling of ash to verify that site-specific treatment criteria were met and that waste was correctly classified. Arranged for and coordinated the transportation and offsite disposal of all treated soils.

Marathon Battery Superfund Site (PRP Trust), Cold Spring, NY: Technical Affairs Manager for the excavation/dredging of 150,000 cy of metals-contaminated soil and sediments from a former plant site, tidal marsh, and sections of the Hudson River, and onsite chemical fixation prior to rail transport for offsite disposal. Duties included onsite supervision of pre- and post-excavation and treatment sampling programs, QC of offsite analytical laboratories, interface with offsite disposal facilities, and liaison with the client regarding waste classification issues.

Madison Wire Site (NYS Superfund), West Seneca, NY: Technical Affairs Manager for the excavation and offsite disposal of 17,000 tons of metals-contaminated soils. Duties included supervision of an extensive in-situ sampling program to characterize the waste based upon "as excavated" chemical characteristics. Also conducted post-excavation sampling program with "expedited turnaround" (48-hour) of analytical data to facilitate ongoing excavation operations.

Blosenski Landfill (PRP Trust), Chester County, PA: Technical Affairs Manager for the excavation and offsite disposal of 1,200 tons of contaminated soils and 1,000 buried drums. Responsible for all onsite sampling and analysis programs, including development of a sample-compositing and characterization program via an onsite laboratory. Facilitated early completion of the project by employing several TSD outlets (incineration, chemical stabilization, and direct landfill) to allow removal of all wastes from the site within a 14-day time frame.



Appendix E Photographs and Videos

Appendix E

Photographs

The following photographs are a representative set of photographs for work conducted at OU1. The complete set of photographs are included on the CD.



Photo#1 – Photo of work at Property 128.



Photo#2 – Photo of work at Property 302.



Photo#3 – Photo of work at Property 116.





Photo #5 – Photo of work at Property 220 (pre-excavation).



Photo #5 – Photo of work at Property 220 (pre-excavation).



Photo #5 – Photo of work at Property 220 (pre-excavation).



Photo #5 – Photo of work at Property 220 (excavation activities).



Photo #5 – Photo of work at Property 220 (excavation activities).



Photo #5 – Photo of work at Property 220 (excavation activities).



Photo #5 – Photo of work at Property 220 (restoration activities).



Photo #5 – Photo of work at Property 220 (restoration activities).



Photo #5 – Photo of work at Property 129 (excavation activities).



Photo #5 – Photo of work at Property 129 (excavation activities).



Photo #5 – Photo of work at Property 129 (excavation activities).



Photo #5 – Photo of work at Property 129 (restoration activities).



Photo #5 – Photo of work at Property 129 (restoration activities).



Photo #5 – Photo of work at Property 129 (restoration activities).



Photo #5 – Photo of work at Property 129 (restoration activities).



Photo #6 – Photo of work at Property 304 (restoration activities).



Photo #7 – Photo of work at Property 304 (restoration activities).



Photo #7 – Photo of capacitor material found during work at Property 226.



Photo #7 – Photo of capacitor material found during work at Property 226.



Photo #7 – Photo of work at Property 129 (placement of drainage controls).



Photo #7 – Photo of work at Property 129 (placement of drainage controls).















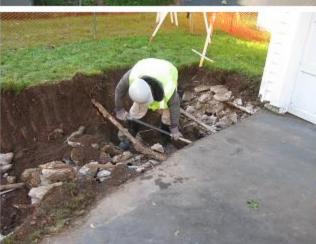










































































Appendix F Freehold Soil Conservation District Correspondence

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR					DATE			TRANSMITTAL NO.		
MANUFACTURER'S CERTIFICATES OF COMPLIANCE				07/18/2012			01330-42			
(Read instructions on the reverse side prior to initiating this form)										
SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)										
TO: Environmental Residency US Army Corps of Engineers		FROM: Sevenson Environmental Services		CONTRACT NO. W912DQ-10-D-30			CHECK ONE: THIS IS A NEW TRANSMITTAL THIS IS A RESUBMITTAL OF TRANSMITTAL			
214 State Highway 18		2749 Lockport Road				06 0002				
East Brunswick, NJ 08816		Niagara Falls, NY 14305 PROJECT TITLE AND LOCATION 01-Main Register								
SPECIFICATION SEC. NO. (Cover only one section with each transmittel) 01330		PROJECT TITLE AND Cornell Dubilier OU:	oulevard, South Plainfield		, NJ 07080	CHECK ONE: THIS TRANSMITTAL IS FOR X FIO GA DA CR		TAL IS CR		
ITEM NO.	DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.)		MFG OR CONTR.	NO. OF	CONTRAC	T REFERENCE UMENT	FOR CONTRACTOR	VARIATION (See	FOR CE	
	, ,,		CAT., CURVE DRAWING OR BROCHURE NO,	COPIES	SPEC.	DRAWING	USE CODE	Instruction No. 6)	USE	
a.	b.		(See instruction no. 8)	d,	PARA. NO. e.	SHEET NO.	a	h.	l.	
1	Freehold Soil Conservation Certification		CERTIFICATES	2	1.2		g. A	N.	1,	
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REMARKS I certify that						the above submi	ted Items have be	en reviewed		
in detail and						are correct and in the strict conformance with the wings and specifications except as otherwise				
stated.						wings and specifications except as utiletwise				
						A second				
						/ wirmmann				
						NAME AND SIGNATURE OF CONTRACTOR				
SECTION II - APPROVAL ACTION										
ENGLOSE	IRES RETURNED (List by item No.)	NA.	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORIT			DATE				
ENG FORM 4025, MAR 95 (ER 415-1-10)			DITION OF SEP 93 IS OBSOLETE	<u>:</u>	SHEET 1	OF 1		(Braces)	at CEMB CE	



- USEPA REGION II / 290 EROADWAY / NEW YORK NY 10007

Ref.#: 2012-0316

Proj.: CORNELL DUBILIER ELECT SUPERFUND

Tap. : SOUTH PLAINFIELD POPO

Block: 256 Lots: 1

CERTIFICATION LETTER

FREEHOLD SOIL CONSERVATION DISTRICT
(Serving Middlesex and Monmouth Counties)

4000 Kozloski Road, P.O. Box 5033 Freehold, New Jersey 07728-5033

> E-mail: info@freeholdscd.org Website: www.freeholdscd.org

Tel: (732) 683-8500 Fax: (732) 683-9140

Pursuant to the New Jersey Soil Erosion and Sediment Control Act; N.J.S.A. 4:24-39 et. seq., Chapter 251, P.L. 1978 and as amended by C. 264, P.L. 77 and C. 459, P.L. 79, the Freehold Soil Conservation District hereby grants certification of the soil erosion and sediment control plan for the above referenced project, subject to the following:

- 1. That the applicant carries out all land disturbance activities in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey, promulgated by the State Soil Conservation Committee.
- The owner/applicant must obtain a District issued Report of Compliance prior to the issuance of any Certificates of Occupancy by the municipality.
- 3. Changes in the certified plan relating to, or that will affect land disturbance on the site, must be submitted to the District office for certification.
- *4. The owner / applicant must notify the District seventy-two. (72) hours prior to any land disturbing activity.

A copy of the certified plan must be kept on the job site at all times.

This plan certification is valid for 3 % years (valid until 1/10/2016) and is limited to the controls specified in this plan. It is not authorization to engage in proposed land use unless the municipality or other controlling agency has previously approved such use. Failure to comply with the above conditions may result in the issuance of a STOP CONSTRUCTION ORDER.

Sincerely,

Dis

Ines M. Grimm

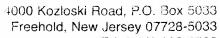
District Manager

cc: Planning Board

Construction Official Municipal Engineer Applicant's Engineer

FREEHOLD SOIL CONSERVATION DISTRICT

(Serving Middlesex and Monmouth Counties)



Tel: (732) 683-8500 Fax: (732) 683-9140

E-mail: info@freeholdscd.org Website: www.freeholdscd.org

12/30/13



USEPA REGION II 290 EROADWAY NEW YORK NY 10007

Ref.#: 2012-0316

Proj.: CORNELL DUBILIER ELECT SUPERFUND

Twp. : SOUTH PLAINFIELD BORO

Block: 256 Lots: 1

CERTIFICATION OF PLAN ADDENDUM

Pursuant to the New Jersey Soil Erosion and Sediment Control Act; N.J.S.A. 4:24-39 et. seq., Chapter 251, P.L. 1975 and as amended by C. 264, P.L. 77 and C. 459, P.L. 79, the Freehold Soil Conservation District hereby grants certification of the revised soil erosion and sediment control plan for the above referenced project, subject to the following:

- 1. That the applicant carries out all land disturbance activities in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey, promulgated by the State Soil Conservation Committee.
- 2. The owner/applicant must obtain a District issued Report of Compliance prior to the issuance of any Certificates of Occupancy by the municipality.
- 3. Changes in the certified plan relating to, or that will affect land disturbance on the site, must be submitted to the District office for certification.

A copy of the plan must be kept on the job site at all times.

This certification is limited to the controls specified in this plan. It is not authorization to engage in proposed land use unless the municipality or other controlling agency has previously approved such use. Also, the certification of the revisions does not constitute an extension of the original certification period for the project. Rather, it is only an acknowledgement that the changes to the plan design meet the requirements of the state standards. Failure to comply with the above conditions may result in the issuance of a STOP CONSTRUCTION ORDER.

Sincerely,

Theā M√Z1mmerma District Manager

Planning Board Construction Official Municipal Engineer

Applicant's Engineer

cc:

FREEHOLD SOIL CONSERVATION DISTRICT

4000 Kozloski Road, P.O. Box 5033 Freehold, NJ 07728-5033





ARCADIS
44 SOUTH BROADWAY, 15TH FLOOR
WHITE PLAINS NY 10601
2012-0316

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FREEHOLD SOIL CONSERVATION DISTRICT

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4000 Kozloski Road, P.O. Box 5033 Freehold, New Jersey 07728-5033

Tel: (732) 683-8500 Fax: (732) 683-9140

E-mail: info@freeholdscd.org Website: www.freeholdscd.org

4/2/13

USEPA REGION II 290 BROADWAY NEW YORK NY 10007

Ref.#: 2012-0316

Proj.: CORNELL DUBILIER ELECT SUPERFUND

Two. : SOUTH PLAINFIELD BORO

Block: 256 Lots: 1

CERTIFICATION OF REVISED PLANS

Pursuant to the New Jersey Soil Erosion and Sediment Control Act; N.J.S.A. 4:24-39 et. seq., Chapter 251, P.L. 1975 and as amended by C. 264, P.L. 77 and C. 459, P.L. 79, the Freehold Soil Conservation District hereby grants certification of the revised soil erosion and sediment control plan for the above referenced project, subject to the following:

- 1. That the applicant carries out all land disturbance activities in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey, promulgated by the State Soil Conservation Committee.
- 2. The owner/applicant must obtain a District issued Report of Compliance prior to the issuance of any Certificates of Occupancy by the municipality.
- 3. Changes in the certified plan relating to, or that will affect land disturbance on the site, must be submitted to the District office for certification.

A copy of the plan must be kept on the job site at all times.

This certification is limited to the controls specified in this plan. It is not authorization to engage in proposed land use unless the municipality or other controlling agency has previously approved such use. Also, the certification of the revisions does not constitute an extension of the original certification period for the project. Rather, it is only an acknowledgement that the changes to the plan design meet the requirements of the state standards. Failure to comply with the above conditions may result in the issuance of a STOP CONSTRUCTION ORDER.

Sincerely,

District Manager

cc: Planning Board

Construction Official Municipal Engineer Applicant's Engineer